IDAHO BLM

TECHNICAL BULLETIN

IDAHO RIPARIAN AND AQUATIC PROTECTION AND

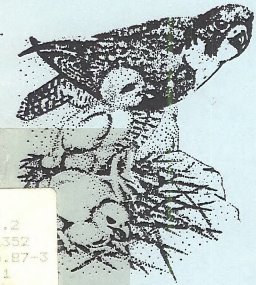
ENHANCEMENT PROGRAM

PART A: INTRODUCTION THROUGH IDAHO FALLS DISTRICT

by

ALLAN E. THOMAS

(EDITOR)



TECHNICAL BULLETIN 87-3A

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BUREAU OF LAND MANAGEMENT
IDAHO STATE OFFICE
3380 Americana Terrace
Boise, Idaho 83706

Idaho Riparian and Aquatic Protection and Enhancement Program

by

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Idaho Bureau of Land Management
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Idaho Riparian and Aquatic Protection

and Enhancement Program

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INTRODUCTION

Riparian has become a major "buzz" word with land management agencies in recent years. The topic is being widely discussed in the media and at meetings and symposiums, and some of these discussions have evolved into on-the-ground protection/enhancement projects. This interest is certainly overdue. While rangelands have probably improved or at least stabilized since the passage of the Taylor Grazing Act in 1934, most riparian areas continued to degrade. The ultimate result will be wide-spread desertification throughout the Western U.S. with lowering of water tables; heavy erosion from increased runoff and flood occurrence; reduced fertility of soils through salt contamination; and loss of habitat for fish, wildlife, and livestock.

Within BLM, there have been a few "shinning stars" trying to reverse riparian trends. These include Wayne Elmore of Prineville, Oregon, and his ecosystem approach to riparian improvement; Bruce Smith of Rock Springs, Wyoming, and his use of beavers in watershed and riparian improvement; and Lew Meyers of Dillon, Montana, and his work with grazing systems to improve riparian woody vegetation. These "stars" and their co-workers have made major advances while some other BLM offices are just beginning to realize that problems exist.

Idaho BLM protected a number of springs, wetlands, and riparian areas with exclusure fences as early as 1952. Protection of stream segments with corridor fences began as early as 1975. Statewide riparian workshops in July and December 1985 led to the development and implementation of our current riparian program. The following article published in Rangelands in October 1986 briefly describes some of our riparian projects and the direction of our future projects. In addition to ongoing projects, each district has initiated pilot riparian projects (as described in the Rangelands report) and is developing new protection and enhancement projects as they are identified in the planning process. In addition, we are doing cooperative riparian research with Dr. William Platts of the Forest Service's Intermountain Station, internal studies on alternatives to fencing, and are developing a regional riparian monitoring and evaluation team.

This Technical Bulletin is an attempt to compile information on Idaho BLM riparian projects through the Fall 1987 and the technology transfer connected with those projects. Hopefully, information from these projects will be used to better design and implement future projects for the rapid improvement of these vital areas.

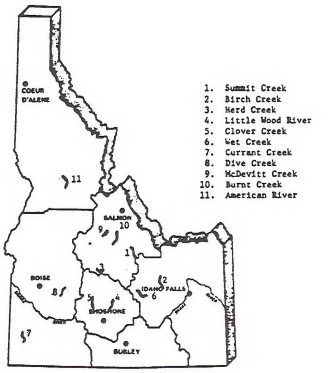
Riparian Protection/Enhancement in Idaho

Allan E. Thomas

In Idaho, the Bureau of Land Management (BLM) manages about 12 million acres. Less than 0.6 percent (69,000 acres) can be considered to be riparian. Initial surveys indicate that over 80 percent (54,000 acres) are in some stage of a degraded condition.

Riparian acreage is low, but the values of these areas are high. Livestock are attracted to these areas for water, shade, and vegetation that remains green after upland forage has dried out. Forage production in riparian habitats is often two to three times higher than comparable upland ranges. The diverse vegetation attracts a great variety and density of wildlife species. Many species may use the riparian areas as either permanent or seasonal homes, as migration routes, or for casual visits. The condition of the riparian vegetation influences fish numbers, size, species present, and general health. Watershed values of riparian areas include controlling flood waters, recharging water tables, reducing soil erosion, settling out sediment and nutrients, and protecting free water sources for various wild and domestic users.

Additional values of riparian areas include: (1) hunting and trapping, (2) fishing, (3) wildlife observation and study, (4) tourism, picnicking, and camping, (5) fuel wood and lumber, (6) water purification, (7) real estate, and (8) honey production. Highway engineers prefer riparian sites due to the gradual elevation changes along most streams.



Map of Idaho showing locations of riparian improvement projects mentioned in text.

Causes of Riparian Degradation

Numerous factors can cause deterioration of riparian areas. Some factors cause short-term damage and usually are repaired by the natural resilience of the riparian system. Short-term degradation causes include such things as: (1) wildfires, (2) defoliation by cyclic species such as jackrabbits, tent caterpillars, and grasshoppers, (3) plant diseases, and (4) extremes in weather (drought, minor flooding, ice, etc.). Recovery from such short-term factors can be greatly delayed when compounded with other factors such as heavy livestock or wildlife grazing on the new vegetation.

Long-term deterioration of riparian areas can be caused by factors such as logging, road building, mining, recreational developments (campgrounds, parks), irrigation diversions, urban growth, and continuous livestock overgrazing. Although occasionally found in combination with other factors, the main cause of degradation in Idaho BLM riparian areas has been season-long grazing and trampling by cattle.

Effects of Overgrazing Riparian Areas

Heavy livestock grazing on southern Idaho rangelands began in the days of the Oregon Trail and its effects were recognized as early as 1878. Poor range conditions resulted in the passage of the Taylor Grazing Act of 1934, which regulated grazing on the public domain. While today's rangelands are generally improved, riparian areas still need additional consideration (Armour 1977, Platts 1979, Platts and Nelson 1985a). The study by Platts and Nelson (1985a) showed that when cattle were introduced into previously ungrazed areas at closely controlled grazing intensities, the same changes occurred in riparian areas within a few years as compared to approximately 100 years of season-long livestock grazing. They documented the following changes:

(1) Riparian vegetation was changed, reduced, or eliminated.

(2) The total area of the riparian zone was reduced or altered by channel widening, channel aggradation, or lowering of the water table.

(3) Fish habitat is adversely affected with reduced shade and cover, increased water temperatures, changed stream morphology, and increased sediment.

(4) Streams are characterized by bank degradation and loss of consistent flows. These changes can alter stream characteristics both above and below the impacted stream segment.

The author is fish and wildlife biologist, Bureau of Land Management, Idaho State Office, 3380 Americana Terrace, Boise 83706.

(5) Populations, type, and numbers of fish and macroinvertebrates were altered or eliminated.

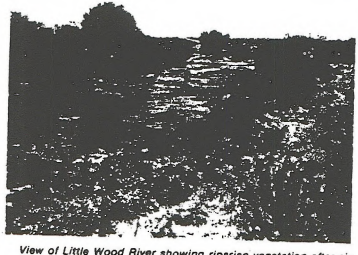
What are Solutions?

There are no simple solutions to returning all riparian areas to pre-grazing conditions and such recovery may not be a management goal. Sites will vary in potential for recovery depending upon factors such as soils, climatic factors, and severity of degradation. Rapid recovery cannot be achieved unless the area is protected from the major cause of degradation—uncontrolled cattle grazing.

Livestock grazing is a legitimate use of western rangelands. The usual approach to improvement of riparian areas has been to exclude cattle from these sites with streamside corridor or "ribbon" fences. Platts and Wagstaff (1984) showed that costs involved in fencing riparian areas would be prohibitive, even if it was socially acceptable. Platts and Rinne (1985) and Platts and Nelson (1985a, 1985b) have shown that these sites can be grazed using a riparian pasture technique and closely controlled grazing management systems.

Idaho BLM Riparian Projects

Long-term management plans for degraded riparian systems require elimination of factors causing the problem. This may mean temporary removal of livestock (exclosure fencing), revegetation, and bank stabilization. The duration of livestock exclusion will depend upon rate of recovery and availability of funds required to change this management system. In some cases, livestock exclusion may be permanent.



View of Little Wood River showing riparian vegetation after six years of livestock exclusion.

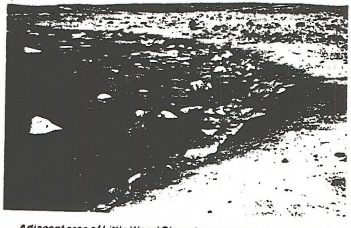
In 1975, Idaho BLM began to fence short segments of streams to exclude livestock. Most of the projects had been identified through the Bureau's planning process as in need of protection and enhancement. The main stream projects are shown in the table.

Idaho BLM stream protected by corridor fences:

Name of Stream	Year Established	Stream Miles Fenced
Summit Creek	1975	2 1/2 miles
Birch Creek	1976	6 miles
Herd Creek	1979	1 1/4 miles
Little Wood River	1975, 1981	9 miles
Clover Creek	1982	2 miles
Wet Creek	1982	6 miles
Currant Creek	1983	1 mile
Dive Creek	1984	2 miles
McDevitt Creek	1984	1 mile
Burnt Creek	1985	7 miles

The streams are fairly small and exclosures vary from 1 to 9 miles long. The larger ones have water gaps to provide access for livestock from adjacent rangeland. The project objectives were: (1) to improve riparian vegetation, (2) to improve fish habitat, and (3) to improve watershed values and decrease soil erosion.

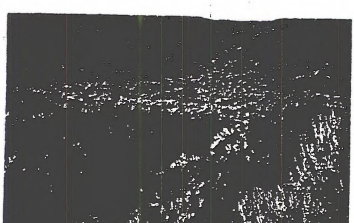
The streams listed in the table were only part of the overall riparian program. We have fenced many stream segments of less than one mile, beginning as early as 1972. Dozens of springs, ponds, and small reservoirs have been fenced. A number of streams located in narrow canyons were protected with barriers and gap fences. Streams without protective fences had streambank improvement projects such as placing cut trees along eroded streambanks to enhance bank stabilization and the planting of willows and cottonwood shoots. Instream structures such as gabions, K-dams, habitat rocks, and instream cover devices have been used to improve fisheries habitat and to reduce erosion. Riparian improvement in numerous other locations is being sought through management using grazing systems.



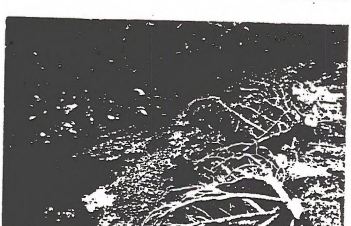
Adjacent area of Little Wood River shortly after livestock excluded.

The positive response of renewed riparian vegetation within fenced stream segments has been very encouraging, even in areas having relatively poor soils and low rainfalls. The growth of woody vegetation, especially willows, was accelerated. Numbers and diversity of plants increased, including certain forbs thought lost from the drainages. Stream profiles become narrower and deeper with meanders and pools. Water quality is improved and wildlife use of the areas increased.

One project (Summit Creek) was evaluated two years after fencing (Keller et al., 1979). Habitat conditions of stream width, riffle width, pool width, pool class, water depth, bank stability, ungulate damage, and aquatic plants were measured. All features within the exclosure had improved, but



Trail Creek, a proposed riparian improvement project. A fenced hay pasture (private land) nearby supports lush riparian vegetation, more water volume in a stable channel, and no bank eroding.



Juniper Creek showing cut juniper trees cabled along the stream for bank stabilization.

conditions outside the exclosure remain unchanged. Streambank stability had markedly improved in the fenced portion while streambank sloughing and trampling of vegetation continued above and below the fence and at all three water gaps. The stream is spring fed with constant flows. The narrowing of the stream within the fenced area from emergent vegetation caused the stream to deepen. Islands of vegetation became established on shoals and bars and created excellent trout cover. Birch and willow regrowth has stabilized eroding streambanks and provided additional fish cover. Mats of aquatic vegetation increased in the fenced area and provided habitat for macroinvertebrates and fish cover. Increased numbers of resident "wild" rainbow trout and brook trout eliminated the need of stocking with hatchery-reared trout. Mink, marsh hawks, and various shorebirds increased in the exclosure. Conflicts between livestock and recreationists were eliminated as a BLM campground was included inside the fenced area.

The Summit Creek project was further evaluated four years after fencing (Keller and Burnham, 1982). Rainbow and brook trout preferred the ungrazed areas over the grazed areas. More catchable trout (8 inches or greater) were found in the ungrazed areas. Brook trout had an apparent preference for open areas as compared to brushy areas; they were not abundant in the ungrazed, brushy segments and were absent from the grazed, brushy segments. The amount of protection given to a stream's riparian zone appears to affect numbers, size, and kind of fish present as well as the type of fishery present (worm and lure, artificial fly, natural bait, etc.).

Beaver moved into the upper part of the Summit Creek project and provided increased habitat for trout and waterfowl. Some of the original brushy species were killed by flooding from the beaver dams, but new willows and birch plants have appeared at the edges of the marshes about as fast as old plants were destroyed.

The Birch Creek project had similar responses in riparian vegetation. Birch Creek varied in that water levels fluctuate more and some ice scouring occurs each spring. The stream bottom is very porous and, if disturbed, could result in much of the flow being lost. A heavy recreation fishery occurs on the stream. To improve fish habitat, we have constructed a number of instream structures (gabions and K-dams) and placed large "habitat" rocks in the stream.

Wet Creek is a complex of BLM and private lands containing good stands of willows and only minor bank degradation. Parts of both Wet Creek and Birch Creek are under livestock grazing systems. Dr. William Platts of the Forest Service's Intermountain Forest and Range Experiment Station is conducting research for us at both of these streams to provide answers on riparian management schemes using livestock and techniques to use to establish, evaluate, and monitor our future riparian projects.

Herd Creek is a chinook salmon spawning stream in a complex of private, BLM, and Forest Service lands. Exclosure fences have improved riparian vegetation and reduced sediment problems.

Dive Creek was fenced to allow recovery of riparian vegetation following a wildfire. Recovery within the fenced area is progressing rapidly after one year of protection, even with high grasshopper numbers. High maintenance costs are expected due to the placement of the corridor fence.

The Little Wood River project is unique in the detail involved in establishing it (cross-section profiles of the stream, photopoints, vegetative evaluation, fish sampling, macroinvertebrate analysis), the use of controls (adjacent area ungrazed for six years; adjacent area under season-long grazing), and monitoring efforts (including low level aerial photography, IR and true color). This area appeared to have low potential due to limited soil and exposed basalt boulders. However, the area fenced in 1975 developed extensive willow growth in six years. Fish populations supported by the Little Wood River include rainbow trout, brown trout, and a sensitive species of sculpin.

Our other fenced projects are all relatively new, but even these are beginning to show improvements. The exclusion of livestock from riparian areas nearly always produces increased riparian vegetation and streambank stability. For the reasons previously mentioned, we hope to produce the same type of improvements through better livestock management.

Our other types of riparian projects have had varied suc-

cesses. Our instream structures in the American River, a salmon and steelhead stream degraded by early gold dredge operations, has produced major improvements in fish habitat, but establishment of riparian vegetation in the barren dredge piles has been difficult. Fencing of ponds and reservoirs has not increased riparian vegetation when there were major fluctuations in water levels. The use of junipers, cut and cabled along eroded streambanks to control erosion, was only partly successful. Continued livestock use of the area caused further bank degeneration through trampling and the cattle ate newly established willow shoots as quickly as they grew through the junipers. Future use of this technique will require removal or reduction of livestock numbers until willows become established and then development of livestock grazing systems to maintain the riparian system.

Future Riparian Program

Supported by the encouraging results of the small scale projects, the Idaho BLM is beginning a "pilot" riparian management program. Guidance and policy for this program were developed at a December 1985 in-state BLM workshop.

Under this program, each of Idaho's six districts will establish at least one major riparian project. The projects must be larger than existing projects and could be as large as a watershed. Districts are encouraged to consider cooperative projects with the Forest Service and private individuals through the Soil Conservation Service. Projects were selected by June 1986 and should be fully implemented by the start of the 1988 grazing season.

Long-term commitments will be needed by all concerned groups. For instance, if beaver are introduced to stabilize erosion problems, the beaver themselves must be managed so that they do not cause serious resource problems.

Each project developed under the pilot riparian management program will be guided by the following rules:

(1) Management of livestock grazing will be part of the project. Riparian pastures will be used rather than corridor or ribbon fences. Livestock can be temporarily excluded until riparian vegetation shows recovery.

(2) Each project will include control plots within the pastures to measure successes or failures.

(3) Consultation, Coordination, and Cooperation (CCC) will be done with the user, other agencies, and interested groups and individuals in a manner similar to the Stewardship Program.

(4) BLM will dedicate the time, effort, and expense necessary to conduct the program.

(5) The program will be developed under an interdisciplinary approach.

(6) All projects will be monitored and evaluated to see if objectives are being met.

(7) Information gained from the program will be distributed through appropriate technology transfer. Favorable results will be applied to other riparian problem areas as part of a future statewide riparian improvement program.

Literature Cited

Armour, Carl L. 1977. Effects of deteriorated range streams on trout. Bureau of Land Management, Idaho State Office, Boise, Idaho. 7 p.

Keller, Charles R., and Kenneth P. Burham. 1982. Riparian fencing, grazing, and trout habitat preference on Summit Creek, Idaho. North American Journal of Fisheries Management 2(1):53-59.

Keller, Charles, Loren Anderson, and Paul Tappel. 1978. Fish habitat changes in Summit Creek, Idaho, after fencing the riparian area. *In:* Forum—Grazing and Riparian/Stream Ecosystems, Oliver B. Cope, ed. (November 3-4, 1978, Denver, Colorado). Trout Unlimited, Inc. p. 46-52.

Platts, William S. 1979. Livestock grazing and riparian/stream ecosystems—an overview. *In:* Forum—Grazing and Riparian/Stream Ecosystems, Oliver B. Cope, ed. (November 3-4, 1978, Denver, Colorado). Trout Unlimited, Inc. p. 39-45.

Platts, William S., and Fred J. Wagstaff. 1984. Fencing to control livestock grazing on riparian habitats along streams: is it a viable alternative? North American Journal of Fisheries Management 4(3):266-272.

Platts, William S., and John N. Rinne. 1985. Riparian and stream enhancement management and research in the Rocky Mountains. North American Journal of Fisheries Management 5(2A):115-125.

Platts, William S., and Roger Loren Nelson. 1985a. Impacts of rest-rotation grazing on stream banks in forested watersheds in Idaho. North American Journal of Fisheries Management 5(4):547-556.

Platts, William S., and Roger Loren Nelson. 1985b. Streamside and upland vegetation use by cattle. Rangelands 7(1):5-7.

Newsletter Available

The Center for Natural Resource Policy and Management at the University of Minnesota has received a grant from the Ford Foundation to begin publication of a new newsletter dealing with common property resources. These resources include open range, other communal grazing lands, as well as many forests. The newsletter is intended to be interdisciplinary and international. The focus will be on management of common property resources and on related public policy.

The International Union for Conservation of Nature and Natural Resources, the National Research Council's Board on Science & Technology for International Development, and Winrock International Center will also be participating in this effort.

Anyone wishing to receive a copy of the pilot issue should contact the editor at the following address: Ed Lotterman, Common Property Resources Newsletter, Department of Agricultural & Applied Economics, 231 C.O.B.—1994 Buford Avenue, St. Paul, MN. 55108.

SYMPOSIUM

Seed and Seedbed Ecology of Rangeland Plants

PURPOSE: To document the state of the science of seeding revegetation species on rangelands where seeding is done with limited or no seedbed preparation and seedling establishment is dependent on precipitation without supplemental irrigation. This symposium will serve to enhance communications among scientists active in the field and to identify priority research needs.

DATE: 20-24 April 1987

PLACE: Doubletree Hotel at Randolph Park, 445 South Alvernon Way, Tucson, Arizona 85711.

SPONSOR: US Department of Agriculture, Agricultural Research Service, Aridland Watershed Management Research Unit, Tucson, Arizona

CONTACTS: Symposium Co-Chairmen: Gary Frasier and Raymond A. Evans; Arrangements: John Griggs, Sue Anderson

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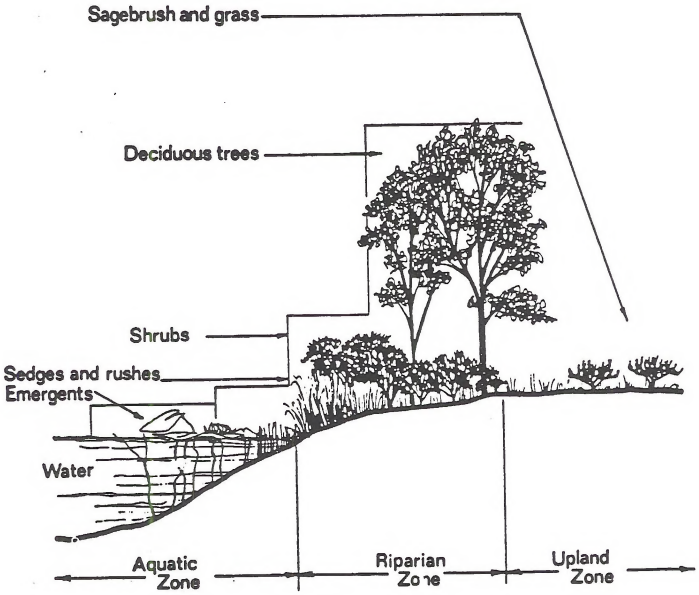
SEEN A RIPARIAN AREA LATELY? GOOD ONES ARE GREEN!



The figure shows streamside vegetation as it should be – along the stream is a healthy riparian area of diverse kinds and sizes of plants which gradually shift into the dominant upland vegetation as you travel further from the stream. Unfortunately, too many BLM drainages contain wide, shallow stream channels with unstable flows; the upland vegetation reaches the top of the eroded streambanks and the water table drops. The riparian area all but disappears.

Boise District

Riparian Management Program

by

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Boise District Riparian Management Program

The Boise District contains over five million public land acres in eleven southwest Idaho counties. Within these five million plus acres are approximately 1,500 miles of perennial streams and rivers and 25,500 surface acres of lakes, ponds, and reservoirs. Riparian habitats associated with these waters and with other intermittent streams, meadows, seeps, and marshes within the district total over 32,000 acres.

Divided among the four resource areas on the Boise District are approximately 550,000 AUM's per year of livestock grazing. Livestock grazing has the single greatest impact on riparian habitats on the district. Project work aimed at improving riparian habitats are primarily focused on the exclusion of livestock from these critical areas and take the form of fenced exclosures. Project size and design vary greatly and range from small 0.10 acre spring exclosures up to 300 acres for a reservoir and associated habitat. These projects represent a long term committment to these important wildlife habitats

BRUNEAU RESOURCE AREA

A. Rattlesnake Gap Fence

A gap fence was placed across Rattlesnake Creek in 1977. This fence protects approx. 2.0 miles of Rattlesnake Cr. from livestock grazing.

1. a. Date: Built in 1977.
   b. Size: Protects 2 miles of riparian habitat as part of the Little Jacks Cr. riparian protection.
   c. Drainage: Rattlesnake Cr. and Lt. Jacks Creek drainages.
   d. Precipitation: 10"-13".
   e. Soils: Riparian area are dominated by Co-L Aquic Xerofluvents (60%) and Fi-L Aridic Haplo-Xerolls (40%). Benches - Igert Gr-L (50%), Willhill Gr-L (25%), and Hardtrigger Gr-L (15%).
   f. Vegetation: Benchlands POSA 8%, AGSP 10%, Owl Clover 6%, ASTRA 7%, ARTRW 53%.
   g. Topography: Very rough deeply dissected table lands. The gap fence protects the riparian stream bottom that is approx. 700 ft. below the bench lands.
2. The fence was placed across Rattlesnake Cr. to exclude cattle from Rattlesnake Cr. and LT. Jacks Cr. bottoms.
3. Method: Gap fencing.
4. Result: The riparian vegetation is recovering from 100 years of livestock use.
5. Location of gap fence: R3E, T9S, Sec. 17, NENE.
6. NA

B. Little Jacks Cr. Gap Fence.

A gap fence was placed across Little Jacks Cr. at T8S, R3E, Sec. 17 NENE.

1. a. Date: Built in 1977, rebuilt in 1983.
   b. Size: Approx. 12 miles of creek bottom are protected from livestock use.
   c. Drainages: Lt. Jacks Cr. and tributaries.
   d. Precipitation: 12"-16".
   e. Soils: Riparian areas are Dominated by Co-L Aquic Xerofluvents (60%) and Fi-L Aridic Haploxerolls (40%).
   f. Vegetation: POSA 8%, ASCP 10%, Owl clover 6%, ASTRA 7%, ARTRW 53%.
   g. Topography: Very deeply dissected bench lands. The gap fence protects a narrow riparian area along the creek bottom. The creek is 600 to 1000 feet below the adjacent benches.
2. The fence was placed across Little Jacks Cr. to exclude cattle from the creek bottom.
3. Method: Gap fencing.
4. Results: The riparian vegetation is recovering from 100 yrs. of livestock use.
5. The gap fence is located T8S, R3E, Sec16, SENW. Natural barriers exclude livestock from the upper end of Little Jacks Creek. Redband trout are found in Lt. Jacks Cr.
6. NA

C. Big Jacks Cr.

Gap fences were constructed on the Big Jacks Cr. drainage including portions of Duncan Cr. and Wickahoney Crs.

1. a. Dates: Gap fences were built across Big Jacks Cr. and along the rimrock gaps above the creek in 1984. Additional gap fences were placed at various places along Big Jacks, Duncan, and Wickahoney Creeks in 1986.

b. Size: Approximately 17 miles of Big Jacks Cr., 1 mile of Duncan Cr., and 1 mile of Wickahoney Cr. are protected by these gap fences.
c. Drainage: Portions of Big Jacks, Duncan, and Wickahoney Cr. drainages are protected.
d. Precipitation: 10"-13".
e. Soils: Riparian areas are dominated by Co-L Aquic Xerofluvents (60%) and Fi-L Aridic Haploxerolls (40%). Duncan Cr.: Riparian areas are dominated by Co-L Mollic Fluvaquents (60%) and Fi-L Fluvaquentic Haploxerolls (40%). Benches-Wickahoney St-L (55%) and Zecanyon Gr-L(20%). Wickahoney Creek: Riparian areas are dominated by Drews L (60%) and Fi-L Fluvaquentic Haploxerolls (40%). Benches-Bruncan St-L (40%) Hardtrigger Gr-L (30%) and Willhill St-L (30%).
f. Vegetation: Uplands- POSA 8%, BRTE 20%, AGSP 10%, ARTRW 45%, CHUI 7%. Riparian- Salix sp. Cornus sp. Carex sp.
g. Topography: Dissected table lands with the creeks 300 to 600 feet below.

2. Big Jacks Cr. and portions of the associated tributaries were fenced to protect the riparian habitat from cattle grazing. Objectives were to improve riparian and aquatic habitat for three sensitive species; mountain quail, yellow-billed cuckoo and redband trout and other riparian dependent species.
3. Method: Gap fencing.
4. Results: Recovery has been mixed with some areas showing good vegetative recovery while other areas have had livestock wintering inside the exclosure beating vegetation down to pre-exclosure condition.
5. Some vegetative damage occurred during the 1986-1987 winter due to livestock.
6. NA.

D. Kerr Exclosure at Station Spring.
A 2.5 acre exclosure was built in a riparian meadow. T8S, R1W, Sec30 NWNW.

1. a. Dates: Constructed in 1984.
b. Size: Protects 2.5 acres of a riparian meadow from livestock grazing.
c. Drainage: Station Spring is in the Rock Creek drainage.
d. Precipitation: 12"-16".
e. Soils: Riparian areas are dominated by Boulder Lake clay.
f. Vegetation: Carex sp. 25%, POA 25%, AGRO 20%, JUNCU 10%, HOBRO 5%, IRMI 15%, ACMI 5%.

2. The exclosure was built to exclude livestock from a wet meadow habitat. The objectives were to improve cover for sage grouse and other game and non-game wildlife.
3. Method: Exclosure fence.
4. Results: Grasses and forbs are increasing in density; diversity and vigor.
5. NA
6. NA

E. Battle Cr. Well.
Upper Battle Cr., T8S, R1W, Sec. 25, W1/2SE1/4.

1. a. Date: September 1985.
b. Size: 4 acres.
c. Drainage: Battle Cr. Drainage
d. Precipitation: 12"-14".
e. Soils: Riparian areas are dominated by Fi-L Fluvaquentic Haploxerolls (80%) and Fi-L Aquic Xerofluvents (20%).

f. Vegetation: Carex sp. 20%, ARTRV 10%, POA 20%, AGROP 20%, ACMI 5%, Cinquifoil 5%.
g. Topography: Semi-wet low gradient meadow with a pond and spring at the lower end. Battle Cr. bisects the exclosure.

2. Livestock impacts have caused severe streambank erosion and sloughing and have lowered the water table to a point where much of the meadow is drying up. The exclosure was built to reduce livestock accelerated streambank erosion and to improve habitats for game and non-game species.
3. Method: Exclosure fencing.
4. Results: Vegetative community is increasing in diversity and vigor.
5. NA
6. A

F. Blue Cr. Exclosure.

1. a. Dates: Built Sept. 1984, repaired in Sept. 1985., T.1S., R.2E., Sec. 20, SW/SW.
b. Size: 8 acres.
c. Drainage: Blue Cr. in Owyhee River drainage.
d. Precipitation: 12"-16".
e. Soils: Riparian areas are dominated by Welch L (70%) and Welch Variant (25%).
f. Vegetation: SIHY 10%, FEID 15%, POSA 5%, PHIO 5%, ARAR 35%, ARLO 5%, PHHO 7%.
g. Topography: Narrow valley incising bench lands. Low gradient stream.
2. Many years of heavy livestock concentration in the creek has severely impacted streambanks, riparian vegetation, and water quality. Severe downcutting and loss of water table has resulted. The objectives of this project were to reverse downward habitat trends and to provide riparian habitats for game and non-game wildlife.
3. Methods: Exclosure fencing.
4. Results: There has been little recovery.
5. The livestock operator used the exclosure as a holding area for cattle in 1986 and set back recovery to pre-exclosure condition.
6. NA

G. Indian Cr. Reservoir. T1N, R4E, Sec. 29-30.

1. a. Dates: A livestock drift fence was constructed in 1980-81.
b. Size: 300 acres.
c. Drainage: Indian Cr. drainage.
d. Precipitation: 10"-12".
e. Soils: Moulton Fi-sL.
f. Vegetation: UNCO 5%, LEPE 75%, LARE 15%, GILIA 5%.
g. Topography: Small reservoir constructed in shallow basin of basalt origin.
2. The reservoir was fenced to exclude livestock from the reservoir edge and to protect riparian and aquatic vegetation. A livestock watering area was left at the NW edge of the reservoir. The objectives were to protect riparian vegetation and increase waterfowl production. Other game and non-game wildlife will also benefit.
3. Method: Exclosure fencing.
4. Results: Fluctuating water levels, beaver activity, fires and livestock trespass have kept vegetative recovery from occurring as rapidly as hoped. Yearly fence maintenance is required due to ice damage.
5. NA
6. NA

Bruneau Resource Area: Small spring/riparian area developments.

H. Name: Ace Spring Exclosure.
Location: T7S, R1E, Sec. 19, SENE.
Date: 1977
Size: 0.3 acres.
Purpose: To protect spring head and 40 yards of outflow.

I. Name: Birch Creek Exclosure.
Location: T7S, R1E, Sec. 9, NW.
Date:
Size: 1.0 acres.
Purpose: Protect riparian vegetation.

J. Name: Bucks Spring Exclosure.
Location: T8S, R2W, Sec. 24, SWSW.
Date: 1970
Size: 0.1 acres.
Purpose: To protect spring head.

K. Name: Cottonwood Creek Spring Exclosure.
Location: T1S, R7E, Sec. 9, SW.
Date: 1977
Size: 2.0 acres.
Purpose: Protect ripraian vegetation.

L. Name: Darcy Spring Exclosure.
Location: T8S, R1W, Sec. 9, NWNE.
Date: 1983
Size: 1.3 acres.
Purpose: Protect riparian area.

M. Name: Ditto Spring Exclosure.
Location: T1S, R5E, Sec. 2, SESE.
Date: 1982
Size: 0.7 acres.
Purpose: Protect spring head.

N. Name: Dry Creek Spring Exclosure.
Location: T1S, R6E, Sec. 30, SESE
Date: 1966
Size: 3.0 acres.
Purpose: Protect riparian area.

O. Name: Fish & Game Exclosure #1.
Location: T1S, R6E, Sec. 22, SENE.
Date: 1981
Size: 1.0 acres.
Purpose: Protect riparian area.

P. Name: Fish & Game Exclosure #2.
Location: T2S, R7E, Sec. 2, NW.
Date: Unknown
Size: 0.1 acres.
Purpose: Protect spring head.

Q. Name: Goodman Gulch.
Location: T7S, R1W, Sec. 27, NWSE.
Date: 1977
Size: 1.0 acres.
Purpose: Protect riparian vegetation.

R. Name: Little Half Moon Spring Exclosure..
Location: T7S, R1E, Sec. 34.
Date: 1977
Size: 2.0 acres.
Purpose: Protect spring head.

S. Name: Paradise Spring Exclosure.
Location: T1S, R7E, Sec. 7, SWSW.
Date: 1977
Size: 0.75 acres.
Purpose: Protect spring head.

T. Name: Poison Gulch Spring.
Location: T7S, R1E, Sec. 27, NESW.
Date: 1977
Size: 0.15 acres.
Purpose: Protect spring head.

U. Name: Poison Valley.
Location: T8S, R1E, Sec. 15, NW1/4.
Date: 1977
Size: 1.0 acres.
Purpose: Protect spring head.

V. Name: Slide Spring Exclosure.
Location: T7S, R1W, Sec. 24, NESW.
Date: 1983
Size: 2.6 acres.
Purpose: Protect spring head.

W. Name: Summit Spring Exclosure.
Location: T8S, R1E, Sec. 20, SW1/4.
Date: 1981
Size: 0.1 acres.
Purpose: Protect spring head.

X. Name: Teapot Basin Spring Exclosure.
Location: T3S, R8E, Sec. 3, SWSW.
Date: 1977
Size: 1.0 acres.
Purpose: Protect riparian vegetation.

Y. Name: Tollgate Spring Exclosure.
Location: T2S, R7E, Sec. 26
Date:
Size: 2.0 acres.
Purpose: Protect spring head.

Z. Name: Water Development III-6.
Location: T2S, R7E, Sec. 6, SE.
Date: 1966
Size: 2.0 acres.
Purpose: Protect spring head.

CASCADE RESOURCE AREA

Project	Location	Key species
1. Carex Reservoir	T12N, R1W, Sec. 11	D,G,S,W.
2. Decker Spring	T11N, R1W, Sec. 29	D,S,C.
3. White Spring	T3N, R3E, Sec. 14	D,E,F,Q
4. Tinsley Spring	T11N, R1W, Sec. 31	D,E,S
5. Cada Reservoir	T11N, R1W, Sec. 33	D,E,S,W,C
6. Craig Reservoir	T11N, R1W, Sec. 29	D,E,S,W,C
7. Lower Corral Cr. Spr.	T8N, R1W, Sec. 27	D,E,C,G,F
8. Lookout Resv. #2	T8N, R1W, Sec. 24	E,D,C
9. Uriq Resv.	T13N, R1E, Sec. 7	E,D,S,W,Q,G
10. Pitt Resv.	T8N, R1W, Sec. 12	E,D,S,W,C,F
11. Galdunis Spring	T9N, R3E, Sec. 35	E,D,F
12. Buckskin Resv.	T12N, R1E, Sec. 17	E,D,W,Q,C,S
13. McDermott	T12N, R1E, Sec. 7	E,D,W,Q,C,S
14. Red Basin Sp.	T9N, R1E, Sec. 27	D,E,C,G,Q
15. Halstrom Sp.	T14N, R3W, Sec. 8	E,D,C,G,P
16. Skow Sp.	T10N, R3W, Sec. 5	D,E,C,G
17. Skow Resv.	T10N, R3W, Sec. 23	D,E,C,W,S
18. La Toey Sp.	T9N, R1E, Sec. 27	D,Q,P,G
Future Projects		
1. Road Spr.	T11N, R1W, Sec. 30	E,D,S,C
2. Bristol Cr. excl.	T8N, R1W, Sec. 33	E,D,Q,G,C
3. Dan Gulch Spr.	T13N, R1E, Sec. 4	E,D,F,S,G
4. Pratt Spr.	T8N, R1E, Sec. 10	E,D,F,C,G,
5. Toad Spr.	T11N, R1W, Sec. 16	E,D,S,C
6. Dry Creek Spr.	T9N, R2W, Sec. 13	D,E,C,Q
7. Aggie #1	T9N, R1W, Sec. 19	D,C,Q
8. Aggie #2	T9N, R1W, Sec. 31	D,C,Q

Key

D = Deer
S = Sage Grouse
F = Forest Grouse
W = Waterfowl
P = Pheasant
Q = Quail
E = Elk
C = Chukar
G = Gray Partridge

JARBIDGE RESOURCE AREA

A. Dive Creek Exclosure.
   1. a. Date: September 1984.
      b. Size: 1.2 miles.
      c. Drainage: Snake River; Bennett Creek.
      d. Precipitation: 12"
      e. Soils: NA
      f. Vegetation: Salix. (2 species), Ribes sp., Rosa sp., Prunus sp.
      g. Topography:
   2. A portion of the creek was burned in the 1950's. Yearly hot season livestock grazing has eliminated woody riparian species. The creek is the only livestock water in the pasture and livestock concentrate on the streambanks. Redband trout are present and utilize spring flows for spawning. Objectives were to re-establish woody riparian species to pre-burn condition and diversity, and increase and maintain summer flows for redband trout rearing.
   3. Method: Exclusion fencing, willow plantings.
   4. Results: Natural willow growth is 5+ feet, Willow planting 80% successful.
   5. Grasshoppers devastated vegetation in 1985, very low flow in 1986, creek was dry in 1987.
   6. NA.

B. Little Canyon Creek.
   1. a. Date: 1972, 1978.
      b. Size: 1.75 miles.
      c. Drainage: Drains directly to Snake River.
      d. Precipitation: 12".
      e. Soils: NA
      f. Vegetation: The riparian area is dominated by Salix sp. Other shrubs include Woods rose, Golden currant, Hawthorne, and Clematis. The surrounding upland plant community is dominated by Wyoming big sage with a Poa spp. understory.
      g. Topography: Little Canyon Cr. is a shallow canyon (20 feet) cut through basalts. Most of the rim is continuous and is a barrier to livestock.
   2. Gap fencing of Little Canyon Cr. was proposed in 1972 to protect riparian habitat for nesting waterfowl and food and cover for terrestrial wildlife species. A portion of the fence was originally built to separate livestock east and west of the creek. The wildlife program added on to the project as late as 1978 to complete the 1.75 miles of riparian zone currently protected. Rimrock gaps were fenced to prevent livestock access to the creek, however watering access was provided.
   3. Method: Gap fencing and hand built rock barriers.
   4. Results: Results have not been measured but to the eye it is obvious that the rest given to the stream has returned the riparian shrubs to their former density and vigor. Game and non-game wildlife are abundant throught the canyon.
   5. NA
   6. Photos are in the JRA file.

C. Lily Grade Gap Fence. (Salmon Falls Creek.)
   1. a. Dates: ?.
      b. Size: 25 miles of Salmon Falls Creek.

c. Drainage: Snake River; Salmon Falls Cr.
d. Precipitation: 10"
e. Soils: NA
f. Vegetation: Woody riparian species; and Wyoming big sage and scattered patches of low sage.
g. Topography: Flat plateau with deeply incised creek canyon.

2. Rim gap fences were built to prevent livestock access to Lily Grade road and Salmon Falls Creek. Past livestock access to Salmon Falls Creek during the summer has heavily damaged riparian and upland habitat. Objectives were to prevent livestock access to the creek and to prevent further damage to these habitats.
3. Methods: Gap fences.
4. Results: Increased vegetative vigor and protection of riparian and watershed values.
5. NA
6. NA

D. Devil Creek Mouth Gap Fence.

1. a. Dates: 1977.
b. Size: 25 miles of Salmon Falls Creek (in combination with Lily Grade Gap Fence).
c. Drainage: Snake River; Salmon Falls Creek.
d. Precipitation: 10".
e. Soils: NA
f. Vegetation: Juniper and surrounding Basin and Wyoming Big sage.
g. Topography: Steep, moderately deep basalt canyon.

2. A fence was built across the mouth of Devil Creek to prevent the drift of livestock into Salmon Falls Creek canyon. Devil Creek is an intermittent stream which provides one of the few access points through the rim protecting Salmon Falls Cr. canyon. The project was done to protect Salmon Falls Cr. riparian area which is now an ACEC.
3. Method: Gap fence and suspended crossing barrier.
4. Results: Improved upland and riparian vegetation.
5. NA
6. NA

E. East Fork Bruneau River (mouth up to Juniper Ranch).

1. a. Date: 1987
b. Size: 22.5 miles of E. F. Bruneau R.
c. Drainages: Snake River; Bruneau River.
d. Precipitation: NA
e. Soils: NA
f. Vegetation: Big sage, Willow, Poison Ivy.
g. Topography: Deeply incised canyon of basalt origin.

2. The East Fork Bruneau River was identified in the Jarbidge RMP as being in poor fisheries and riparian habitat condition, and was considered a high priority. The project is planned in two phases. The first protective fences were built in 1987. The project sections done to date consist of protective fences and watering gaps for livestock. The first phase of the project is the 31 miles between the Juniper Ranch and the mouth and the second phase, above Juniper Ranch, consists of 14 miles of the East Fork to the junction of the Three Creeks. When completed, phase one will protect approximately 22.5 miles of riparian habitat. Phase two will be completed when politically feasible.
3. Method: Gap fencing, suspended crossings, and livestock water gaps.
4. Results: NA

5. Being a large river, the East Fork will provide some interesting experience with cable supported panel crossings and highly variable flow fluctuations. It has the potential to be a high maintenance project.
6. NA

F. Dean Recreation Site (Dove Springs).
1. a. Dates: Constructed in the early 1970's.
   b. Size: 7 acres.
   c. Drainage: Cedar Cr., Salmon Falls Cr.
   d. Precipitation: 16+".
   e. Soils: NA
   f. Vegetation: Riparian area is a mix of woody species with willows and quaking aspen dominating. The uplands consist mainly of Vaseyena sage brush.
   g. Topography: A gentle north facing basin with some large basalt outcrops.
2. This is a 7 acre exclosure protecting the main spring area forming Cedar Creek. It was built over 15 years ago as a recreation site for hunters. It consisted of a fence, 2 cattle guards, and an outhouse. The original fence had not been maintained and livestock had found access at several locations, damaging the riparian area. The wildlife program took over responsibility in 1985 when it was abandoned by the recreation program.
3. Method: Let-down exclosure fence.
4. Result: NA
5. NA
6. NA

Future Planned Projects:

1. East Fork Bruneau River- Phase two; livestock exclusion above Juniper Ranch.
2. Columbet Cr., Dorsey Cr. gap fence- This project proposes gap fencing portions of rim rock where livestock gain access to the Jarbidge River. Hanging Panel crossings will be used on Columbet and Dorsey Creeks.
3. 71 Reservoir- the project consists of troughs put below the dam and a protective fence built around the reservoir.

A. McDonald Spring Exclosure.
   1. a. Date: 1968.
      b. Size: 0.1 acres.
      c. Drainage: Owyhee River
      d. Precipitation: 20"-22".
      e. Soils: NA.
      f. Vegetation: Juniper, sagebrush, assorted grasses and sedges.
      g. Topography: Mountainous.
   2. To protect spring from livestock grazing.
   3. Method: Exclosure fence.
   4. Results: NA
   5. NA
   6. NA

B. Mud Spring Exclosure.
   1. a. Date: 1980
      b. Size: 2.5 acres.
      c. Drainage: Owyhee River
      d. Precipitation: 20"-22".
      e. Soils: NA.
      f. Vegetation: Juniper, sagebrush, assorted grasses and sedges.
      g. Topography: Mountainous.
   2. To protect spring/meadow from livestock grazing and to protect game and non-game wildlife values.
   3. Method: Exclosure fence.
   4. Results: Spring/meadow is in excellent shape.
   5. NA.
   6. NA.

C. Juniper Spring Exclosure.
   1. a. Date: 1980.
      b. Size: 2-3 acres.
      c. Drainage: Owyhee River.
      d. Precipitation: 10"-12".
      e. Soils: NA.
      f. Vegetation: Sagebrush, assorted grasses and sedges.
      g. Topography: NA.
   2. To protect spring and pond from livestock grazing and to improve game and non-game wildlife habitat.
   3. Methods: Exclosure fence and construction of small pond.
   4. Results: Increase in vegetative diversity and vigor.
   5. NA.
   6. NA.

D. Manada Flat Exclosure.
   1. a. Date: 1968.
      b. Size: 175 acres (49 acres are meadow).
      c. Drainage: NA.
      d. Precipitation: 20"-22".
      e. Soils: NA.
      f. Vegetation: Juniper, sagebrush, PUTR, willow, AGSP, cheatgrass, ASPER, Carex sp.
      g. Topography: Mountain meadows.
   2. To protect spring/meadows from livestock grazing and to improve game and non-game wildlife habitat.

3. Method: Exclosure fence.
4. Results: Heavy snows and large size has made regular maintenance difficult. Livestock have grazed in the exclosure on a regular basis.
5. See # 4.
6. NA.

E. Juniper Creek (Juniper placement.)
1. a. Date: 1984.
b. Size: 1 mile.
c. Drainage: N. F. Owyhee River.
d. Precipitation: 12"-14".
e. Soils: NA
f. Vegetation: Juniper, sagebrush, cheatgrass, willows, dogwood.
g. Topography: Narrow valley in low mountainous terrain of rhyolite origin.
2. Accelerated streambank erosion caused by livestock overgrazing has deteriorated riparian/fisheries habitats. Objectives were to trap stream sediments in branches of juniper trees placed at bank cuts to rebuild banks.
3. Methods: Juniper trees were cut and placed at bank cuts in overlap and wired or cabled in place. Willow cuttings were planted in the trapped sediments.
4. Results: Tons of sediment was trapped along the 2700' of treated streambank. Some trees were lost due to high spring runoff in 1984 & 85. Willow cuttings have approximately 85% success with some over 5'. Unchecked livestock grazing is still occurring and success is reduced from what its potential recovery could be. Project failure is imminent since livestock use continues to prohibit vegetative recovery of streambanks.
5. (see # 4).
6. NA.

F. Rabbit Creek Riparian Project (Pilot Riparian Project).
1. a. Date: 1987.
b. Size: 10 stream miles.
c. Drainage: Rabbit Creek, Snake River.
d. Precipitation: 7" low- 19" high.
e. Soils: NA.
f. Vegetation: Assorted woody riparian species including Willow, Aspen and Rocky Mountain maple. Upland vegetation includes Douglas fir, bitterbrush and rabbitbrush.
g. Topography: Snake River Plain flatlands to mountainous.
2. Project was initiated as a test riparian management project. Objectives were to improve stream/riparian habitats with a balanced multiple use approach.
3. Method: Eight pasture rest rotation. Spring developments, stream check dams, and riparian plantings were also initiated.
4. Results: The project is too new to show results, however, some pastures received unauthorized livestock use this summer.
5. A pasture that was to be rested was grazed. The Rabbit Creek Riparian Plan has not been signed.
6. NA.

G. Holmes Spring Exclosure
1. a. Date: 1979.
b. Size: 1 acre.
c. Drainage: NA.

d. Precipitation: 8"-10".
e. Soils: NA.
f. Vegetation: Willow, carex, AGSP, cheatgrass.
g. Topography: lowland hills.

2. Protect a spring area from livestock grazing.
3. Method: Exclusion fence.
4. Results: Vegetation is in fair to good condition.
5. NA.
6. NA.

H. Johnstone Spring Exclosure.

1. a. Date: 1979.
b. Size: 0.5 acre.
c. Drainage: NA
d. Precipitation: 8"-10".
e. Soils: NA.
f. Vegetation: Willow, sagebrush, and cheatgrass.
g. Topography: Lowland hills.

2. Protect a spring area from livestock grazing.
3. Exclosure fence.
4. Results: Vegetation is in fair condition.
5. NA.
6. NA.

I. Goose Creek Spring Exclosure.

1. a. Date: 1980.
b. Size: 1 acre.
c. Drainage: Jordan Creek.
d. Precipitation: 18"-20".
e. Soils: NA.
f. Vegetation: Willow, sedges, juniper and sagebrush.
g. Topography: Mountainous.

2. Protect a spring from livestock grazing and improve game and non-game wildlife habitat.
3. Method: Exclosure fence.
4. Result: vegetation is in good condition.
5. NA.
6. NA

J. Headcut Spring Exclosure.

1.a. Date: Upper exclosure- 1980, lower exclosure- 1983.
b. Size: Upper, 7 acres; lower, 3 acres.
c. Drainage: N. F. Owyhee River.
d. Precipitation: 18"-20".
e. Soils: NA.
f. Vegetation: Juniper, sagebrush, willow, currant, and assorted grasses and sedges.
g. Topography: Canyonland.

2. Protect spring and drainage head from livestock grazing and to prevent further advancement of large headcut.
3. Method: Exclosure fence.
4. Results: Streamside vegetation has had slow recovery and is in poor condition.
5. Both exclosures have been used as livestock holding pastures by the permittee and have destroyed full seasons of growth. High maintenance effort due to heavy snowfall.
6. NA.

K. Castlehead Spring Exclosure.
   1. a. Date: 1967.
      b. Size: 110 acres, 25 acres of this are meadows.
      c. Drainage: Owyhee River
      d. Precipitation: 20"-22".
      e. Soils: NA.
      f. Vegetation: Aspen, willow, sedges, sagebrush, juniper.
      g. Topography: Mountain meadow.
   2. Protect spring/meadow from livestock grazing and to improve game and non-game wildlife habitat.
   3. Method: Exclosure fence.
   4. Result: Very little improvement.
   5. Heavy snows have damaged the fence allowing livestock repeated access and the remoteness of the site has made maintenance a problem.
   6. NA.

L. Cat Creek Exclosure.
   1. a. Date: 1980.
      b. Size: .25 acre.
      c. Drainage: NA.
      d. Precipitation: 10"-12".
      e. Soils: NA.
      f. Vegetation: Willow, sedges, and sagebrush.
      g. Topography: Lowland hills.

M. Charity Spring Exclosure.
   1. a. Date: 1977.
      b. Size: 10 acres.
      c. Drainage: Castle Creek, Snake River.
      d. Precipitation: 18"-20".
      e. Soils: NA.
      f. Vegetation: Willow ,sedge, juniper, sagebrush.
      g. Topography: Drainage head, lowland hills.
   2. Protect spring head and improve game and non-game wildlife habitat.
   3. Method: Exclosure fence.
   4. Result: Vegetation is in fair to good condition.
   5. Adjacent road maintenance would sometime break the fence and livestock would enter exclosure when they were turned out.
   6. NA.

N. East Goose Creek Exclosure.
   1. a. Date: 1981.
      b. Size: 4 acres.
      c. Drainage: Boulder Creek; Jordan Creek.
      d. Precipitation: 18"-20".
      e. Soils: NA.
      f. Vegetation: Willow, sedges, juniper, sagebrush, bitterbrush, and assorted grasses.
      g. Topography: Mountainous.
   2. Protect spring from livestock grazing and to improve game and non-game wildlife habitat.
   3. Method: Exclosure fence.
   4. Results: Vegetation is in fair to good condition.
   5. NA.
   6. NA.

O. Antelope Spring Exclosure.
   1. a. Date: Pre-1967.
      b. Size: .10 acre.
      c. Drainage: Boulder Creek, Jordan Creek.
      d. Precipitation: 18"-20".
      e. Soils: NA.
      f. Vegetation: Rose, currant, sedges, juniper, sagebrush.
      g. Topography: Low gradient mountain slope.
   2. Protect spring from livestock grazing and to improve game and non-game wildlife habitat.
   3. Method: Exclosure fence.
   4. Vegetative component is in excellent condition.
   5. A very attractive area for sage grouse.
   6. NA.

P. Brandeau Spring Exclosure.
   1. a. Date: 1974.
      b. Size: .10 acre.
      c. Drainage: Wilson Creek.
      d. Precipitation: 12"-14".
      e. Soils: NA
      f. Vegetation: sedges, bitterbrush, sagebrush.
      g. Topography: Lowland hills.
   2. Protect spring from livestock grazing.
   3. Method: Exclosure fence.
   4. Results: Vegetative component is in excellent condition.
   5. Used by chukar and quail.
   6. NA.

Q. Allami Spring Exclosure.
   1. a. Date: 1977.
      b. Size: .25 acre.
      c. Drainage: Wilson Creek
      d. Precipitation: 10"-12".
      e. Soils: NA.
      f. Vegetation: Willow, rose, currant, sedges, and sagebrush.
      g. Topography: Low gradient hillside.
   2. Protect spring from livestock grazing.
   3. Method: Exclosure fence.
   4. Result: Vegetative component is in good condition.:
   5. Containerized planting met with little success.
   6. NA.

R. Alibi Spring Exclosure.
   1. a. Date: NA.
      b. Size: <.01 acre.
      c. Drainage: Castle Creek
      d. Precipitation: 10"-12".
      e. Soils: NA.
      f. Vegetation: Willow, sedges, and sagebrush.
      g. Topography: Low gradient hillside.
   2. Protect spring from livestock grazing.
   3. Exclosure fence.
   4. Results: Vegetative component is in good condition.
   5. This exclosure is very small with minimum benefits to wildlife. This is an old range project that was inherited by the wildlife program.
   6. NA.

S. Current Creek Exclosure.
   1. a. Date: 1983, rebuilt in 1984.
      b. Size: 25 acres.
      c. Drainage: N.F. Owyhee River.
      d. Precipitation: 20"-22".
      e. Soils:
      f. Vegetation: Willow, sedge, juniper, sagebrush, and Poa sp.
      g. Topography: Mountain meadow.
   2. Overgrazing has caused severe headcutting along the creek and has lowered the water table in the meadow changing it to a dry rangeland pasture. Objectives were to slow and eventually reverse and heal headcutting and build the meadow back up and raise the water table. Also to improve riparian/aquatic habitat for redband trout.
   3. Method: Exclosure fence willow plantings.
   4. Results: Very little improvement has occurred.
   5. Livestock have gotten into the exclosure every year since construction. Heavy snow destroyed the fence the first winter and it had to be reconstructed. A letdown fence was built but livestock still find their way in. Cattleguards were poorly placed and will need maintenance in the future.
   6. NA.

T. North Fork Castle Creek.
   1. a. Date: 1983.
      b. Size: 1 mile N. F. Castle Cr., 1 mile Cow Valley Cr.
      c. Drainage: Castle Cr., Snake River.
      d. Precipitation: 14"-16".
      e. Soils: NA.
      f. Vegetation: Willow and assorted sedges and grasses in the riparian area and bitterbrush, mountain mahogany and juniper in the upland.
      g. Topography: Incised canyon of basalt origin.
   2. Livestock overgrazing and trailing along the creek has reduced plant vigor and damaged streambanks. Objectives were to improve riparian vegetation and reverse bank erosion trend. Improvement of redband trout habitat was also a goal.
   3. Method: Exclosure fence.
   4. Results: Very little improvement has occurred. Gates constructed in the fence have been left open and/or cut to allow strays to get out. The exclosure has had minimal rest and a part of it will need to be rebuilt.
   5. See # 4.
   6. NA.

U. Rockville Spring Exclosure.
   1. a. Date: 1979.
      b. Size: .25 acres.
      c. Drainage: Jordan Creek.
      d. Precipitation: 8"-10".
      e. Soils: NA.
      f. Vegetation: Sedges, sagebrush, cheatgrass.
      g. Topography: Mountainous.
   2. Protect spring from livestock grazing.
   3. Exclosure fence.
   4. Vegetative component is in fair condition.

5. Fence has been down several times which has allowed livestock grazing in the exclosure.
6. NA.

V. Seven Deer Spring Exclosure.
1. a. Date: ?
b. Size: .5 acre.
c. Drainage: Reynolds Creek.
d. Precipitation: 12"-14".
e. Soils: NA.
f. Vegetation: Willow, sedges, and sagebrush.
g. Topography: Mountainous.
2. Protect spring from livestock grazing and to improve game and non-game wildlife habitat.
3. Method: Exclosure fence.
4. Vegetative component is in good condition.
5. NA.
6. NA.

W. Skull Spring Exclosure.
1. a. Date: 1969.
b. Size: .10 acre.
c. Drainage: Jordan Creek.
d. Precipitation: 8"-10".
e. Soils: NA.
f. Vegetation: Rose, currant, sagebrush and cheatgrass.
g. Mountainous.
2. Protect spring from livestock grazing.
3. Method: Exclosure fence.
4. Vegetative component is in fair condition.
5. NA.
6. NA.

X. Trout Springs.
1. a. Date: 1967.
b. Size: 180 acres; 35 acres are meadow.
c. Drainage: Owyhee River.
d. Precipitation: 20"-22".
e. Soils: NA.
f. Vegetation: Willow, bitterbrush, juniper, sagebrush, AGSP.
g. Mountainous.
2. Protect meadow/spring from livestock grazing and to improve game and non-game wildlife habitat.
3. Method: Exclosure fence.
4. Vegetative component is in fair condition.
5. Due to its large size and heavy snow conditions maintenance problems occur. We currently have a cooperative agreement with an outfitter to maintain the fence.
6. NA.

Y. Upper Salmon Creek Spring Exclosure.
1. a. Date: 1977.
b. Size: 20 acres.
c. Drainage: Reynolds Creek.
d. Precipitation: 10"-12".
e. Soils: NA.
f. Vegetation: Aspen, willow, elderberry, sedges, bitterbrush, and sagebrush.

g. Topography: Mountainous.

2. Protect spring/meadow from livestock grazing and to improve game and non-game wildlife habitat.
3. Method: Exclosure fence.
4. Vegetative component is in fair-good habitat condition.
5. Livestock have been getting into the exclosure and the rancher has been cutting the fence to get them out. Deer use the area for fawning.
6. NA.

Z. West Gate Gulch Reservoir.

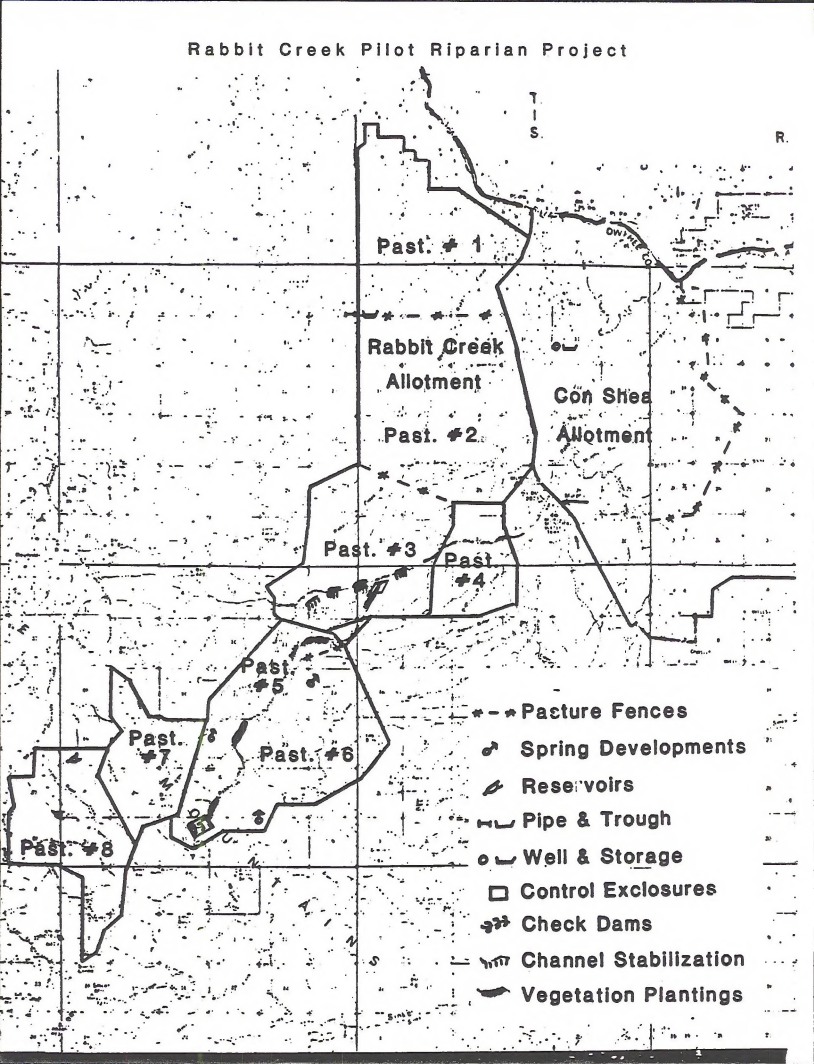
1. a. Date: 1967.
   b. Size: NA.
   c. Drainage: NA.
   d. Precipitation: 12"-14".
   e. Soils: NA.
   f. Vegetation: Willow, aspen, sedges, and sagebrush.
   g. Topography: Lowland hills.
2. Protect reservoir from livestock grazing and to improve game and non-game wildlife habitat.
3. Method: Exclosure fence.
4. Result: Vegetative component is in fair to good condition.
5. Permittee would cut fence and allow livestock to graze inside exclosure. This is no longer happening and improvements are happening.
6. NA.

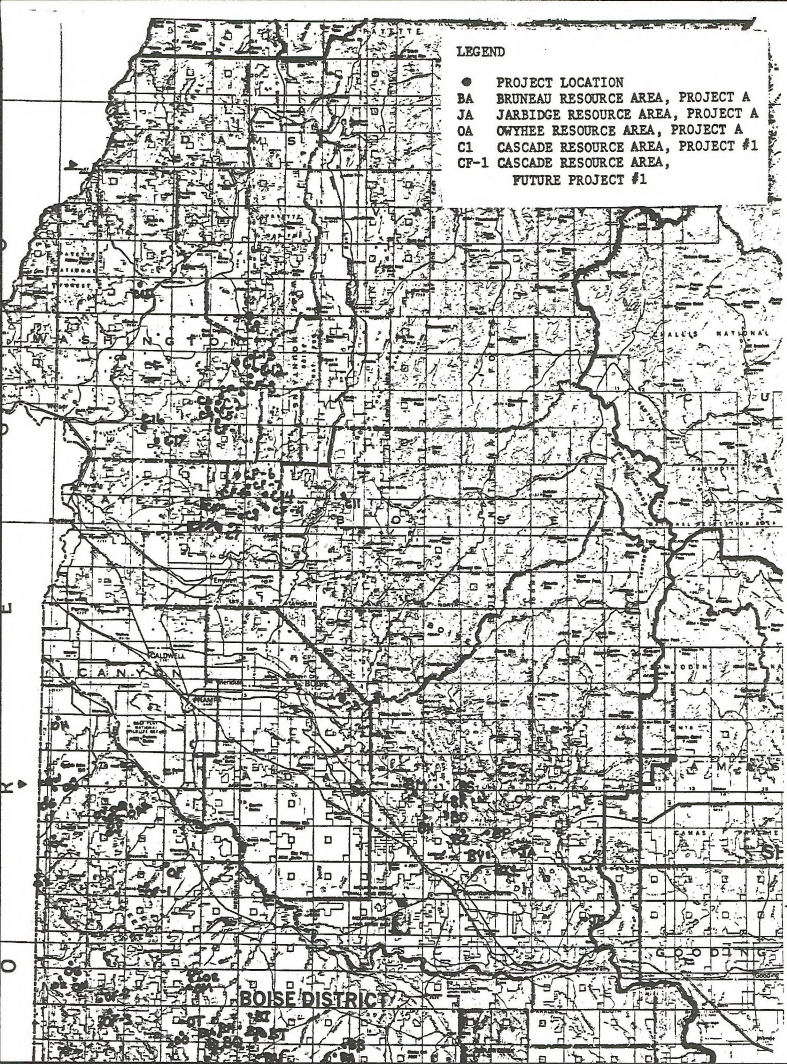
AA. Wilson Bluff Spring Exclosure.

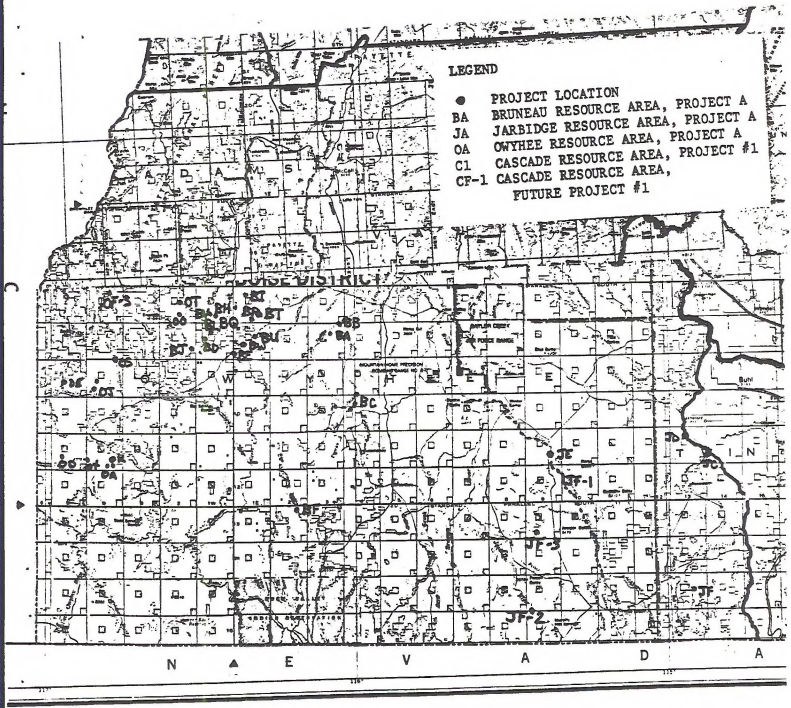
1. a. Date: ?
   b. Size: 1 acre.
   c. Drainage: Wilson Creek.
   d. Precipitation: 10"-12".
   e. Soils NA.
   f. Vegetation: Willow, wildrye, AGSP, sagebrush.
   g. Topography: Lowland hills.
2. Protect from livestock grazing.
3. Method: Exclosure fence.
4. Vegetative component is in good condition.
5. NA.
6. NA.

Future Projects:

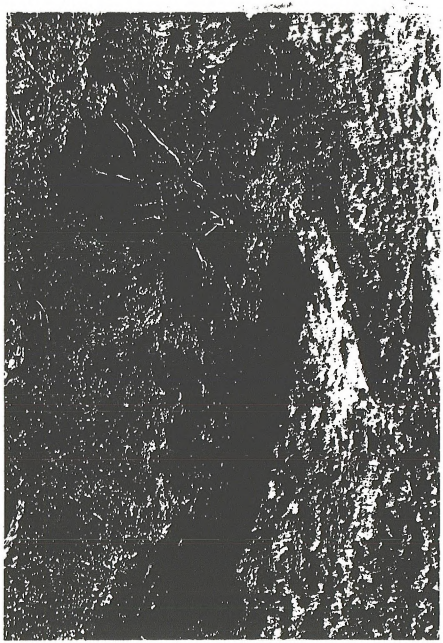
1. Upper Bryer Spring - part of Rabbit Creek Riparian Project.
2. Two Spring - part of Boulder Creek HMP.
3. Rabbit Spring - part of Boulder Creek HMP.
4. McBride Creek Riparian Management Area - 1988, riparian plantings, 3 years grazing rest, short duration high intensity spring grazing.


Rabbit Creek Pilot Riparian Project
T.
S.
R.
Past. #1
Rabbit Creek
Allotment
Past. #2
Con Shea
Allotment
Past. #3
Past. #4
Past. #5
Past. #6
Past. #7
Past. #8
Pasture Fences
Spring Developments
Reservoirs
Pipe & Trough
Well & Storage
Control Exclosures
Check Dams
Channel Stabilization
Vegetation Plantings


LEGEND
● PROJECT LOCATION
BA BRUNEAU RESOURCE AREA, PROJECT A
JA JARBIDGE RESOURCE AREA, PROJECT A
OA OWYHEE RESOURCE AREA, PROJECT A
C1 CASCADE RESOURCE AREA, PROJECT #1
CF-1 CASCADE RESOURCE AREA, FUTURE PROJECT #1
BOISE DISTRICT


LEGEND
PROJECT LOCATION
BA BRUNEAU RESOURCE AREA, PROJECT A
JA JARBIDGE RESOURCE AREA, PROJECT A
OA OWYHEE RESOURCE AREA, PROJECT A
C1 CASCADE RESOURCE AREA, PROJECT #1
CF-1 CASCADE RESOURCE AREA, FUTURE PROJECT #1
NEVADA

DIVE CREEK
RIPARIAN
EXCLOSURES

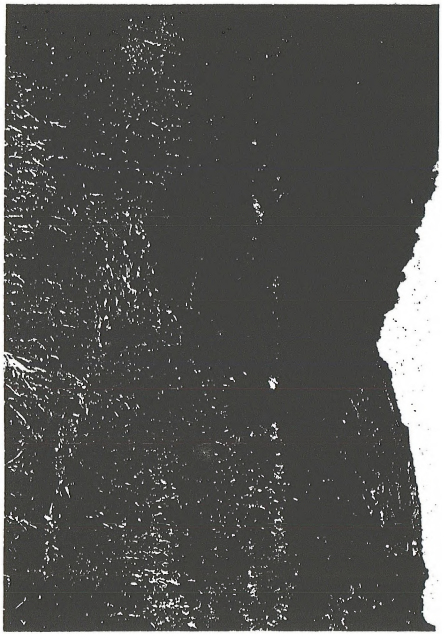


1986

1984

1986

1984



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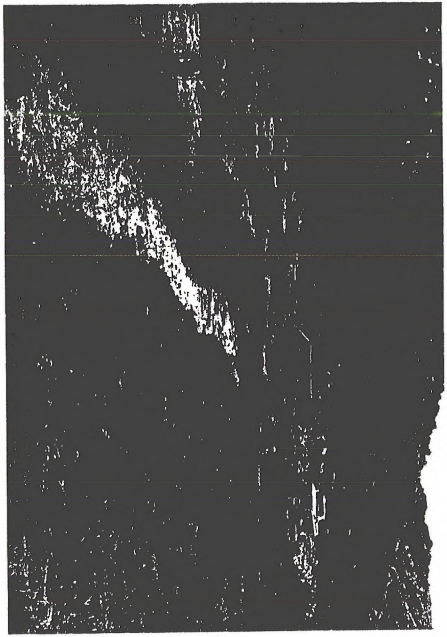


1984

1986

1984

Burley District

Riparian Management Program

by

Kirk Koch
Natural Resources Specialist

Burley District Office
Bureau of Land Management
Route 3, Box 1
Burley, Idaho 83318

PROLOGUE

The Burley District's primary land use is livestock grazing. Traditionally those stock have been very dependant on our scanty surface water resource, and their associated wetland/riparian areas have paid the long term price.

In an attempt to reverse that long trend we initially evaluated the aquatic environment through monitoring and inventory techniques. This, parlayed with interdisciplinary brain storming and cooperative, goal oriented, communications with outside interests has produced several projects with riparian benefits detailed on the following pages.

These projects portray the bulk of the positive ones beyond fenced exclosures, there have been many frustrations involved with other proposals that didn't receive such support. Although our people are constantly learning more on the subject, it seems our largest challenge is in securing public and user support that assures cooperation on the ground.

We're excited about the potential we have in riparian improvement and have established a goal of at least one riparian project/year for the District.

BURLEY DISTRICT RIPARIAN PROJECTS

Past, Present, and Future

1. Shoshone Creek - This twelve mile reach is the District's pilot project. It's located in southern Twin Falls county toward the bottom of a 200 square mile watershed draining 7,500' Deadline Ridge on the Sawtooth National Forest. All of the project area lies between 5,500 and 5,000 feet. It receives roughly 14" of precipitation annually with the majority coming as snow. Stream flows fluctuate widely from in excess of 300 CFS during snow melt to less than ten CFS in the fall.

The majority of the project area is a rolling basalt plain dominated by sage and bunch grasses. The stream enters BLM lands in a broad meadow for several miles before dropping more rapidly through a winding basalt canyon, often exceeding 200' deep.

This project area encompasses three cattle grazing allotments. Shoshone Creek became an issue during the planning units grazing EIS in 1982 when grazing practices were blamed for poor riparian/stream conditions. Instead of fencing the entire stream the Area Manager decided to build an exclosure in each allotment, and monitor the exclosed areas conditions and trend. This information would then be compared to like grazed areas for a quantified look at currant grazing impacts in each allotment.

This general concept has been expanded for the pilot project. Specific project objectives are to:

1. improve the streams woody vegetation;
2. improve riparian ground cover and composition;
3. improve the water and fishery;
4. improve bank stability; and
5. equalize livestock distribution beyond the stream.

Our strategy here is to improve water availability and forage quality in the uplands. This combined with grazing system changes such as season of use, herding, and gap fencing will hopefully make the stream less desirable in the eyes of the cow, and thereby encourage desirable riparian revegetation.

Although this pilot plan is only in its infancy, monitoring mandated through the EIS has taught us some things about the system that has led to the genesis of objectives. The exclosures have shown a marked improvement in ground cover and vegetative diversity. Following the heavy run-off years of 83 and 84 we've experienced dramatic increases in willow seedlings, but those receiving grazing pressures have been browsed and trampled, appearing much less vigorous than protected seedlings. There has also been improvement in the sedge cover inside the exclosures on what were bare bars. This has not happened to the same degree outside the fences.

This effort to improve the creek is slow and sometimes frustrating, always expensive. We've been blessed with cooperative ranchers that have helped with project construction and maintenance, but coordination between them, Idaho Fish and Game, and other interests has demanded many hours. In our effort to improve distribution we are attracting livestock into native range that has rarely felt a domestic hoof. As the riparian area improves will the rest of the range pay for it? We've also learned a lesson regarding exclosures around streams. High flows a few years back nearly ruined them, and reconstructing them was relatively costly.

This pilot plan will be fully implemented by 1990. We then have five years to achieve short term goals. If we don't, adjustments will be made by the interdisciplinary team which will meet annually and include an Idaho Department of Fish and Game representative and rancher interests. The projects long term time objective is twenty years.

2. Winter Springs Gully Rehab - This is a small gully system near the head of a basalt watershed that borders a county road and serves as a livestock driveway. The spring was developed as a recreation water (picnic area) and as a livestock watering source.

The picnic site had been fenced in the early 60's, but the enclosure did not include the gully system. The spring and the associated drainage/ gully contrasts dramatically with the surrounding sage brush bunch grass ecosystem and even in its poor condition the opportunity to revive the wetland system and stabilize mobile soils was obvious.

In the fall of 1983 we enlarged the pole fence to include the spring head and 500' of the main gully. We also installed six channel structures aimed at retaining water and sediment, plus utilized an excelsior material on near vertical raw banks to encourage their stability through revegetation.

The treatment has worked to date. The objectives of improved soil stability sediment and water retention and vegetative diversity are being realized. We used three types of channel structures; loose rock, fence with rock, and metal sheet with rock, and each has performed as designed with minimal maintenance. Cut banks that were barren four years ago are now covered with forbs and perennial grasses. The excelsior has degenerated but it stayed in tact protecting the soil until vegetation established. The pole fence has been very successful in excluding livestock, allowing wetland species to repopulate the bottom, and sediment is gradually filling the gully back to gentler contours.

The projects only downfall is that recreationalists in need of fire wood are gradually dismantling the pole fence. It's greatest benefit is its high visibility on the county road. With dramatic fenceline contrasts the passing public can see the benefits of healthy riparian systems.

3. Van Komen Flood Control - This project was done in a 120 square mile ephemeral watershed located in old Lake Bonneville terraces just north of the Utah state line. The watershed drains mountains in excess of 7,000' but the project area is in porous, lacustrine deposits around 4,700'. Vegetation is dominated by a sage brush/bunch grass system with flat to rolling topography.

The project was initiated to take the punch out of flash foods that perennially caused county road damage. It was also felt we could enjoy off shoot riparian benefits. In the fall of 1983 ten gully plugs were constructed in the drainage using corrugated steel sheet with rip rap aprons. They worked well until an intense thunder storm in July of 1985 flushed the system and breached a majority of the structures. They were maintained in the fall of that year using heavier rock and filter cloth to patch the undermines. At this time a dozen extra structures were built downstream of the initial ten to add storage. These lower, new structures were composed of large dense stones without extra support.

The system has functioned well since it was maintained, retaining water and sediment throughout, plus removing significant flood potential. Although desirable water loving plants have yet to pioneer the project area, the native arid varieties are flourishing with the added moisture, adding stability to the previously unconsolidated banks. Willow cuttings will be planted throughout the project area in the spring of 1988.

This project has taught District specialists many of the commitments necessary in watershed rehabilitation. Site selection and the structures make up proved to be problems here, but expensive maintenance and alterations kept the project viable, and with it brought the realization that this project and other like it are on going. Maintenance is paramount to success.

4. Dry Gulch Watershed Rehabilitation - This is a coordinated effort between the Burley District and the Sawtooth Forest located in Cassia county near the Utah stateline. Its a twenty square mile watershed of mountainous terrain composed of volcanics with a high component of ash. The BLM manages roughly 40% of the project area. Vegetation is a juniper, sagebrush, bunch grass system. The drainage sheds mountains of 7,000' with the project area located at 5,000 to 4,500'. Precipitation averages 14"/year with most coming as snow. The watershed is very flashy and prone to periodic intense summer storms.

This project was prompted by two primary factors. First, the rancher downstream of public land was attempting to utilize the drainage's water yield for irrigation, but the vast quantities of sediment that came with the water frustrated his efforts. Second, the gully system is progressively expanding, deteriorating the entire areas productivity.

Project objectives are to improve the watershed's absorptive capacities while raising the main gullies base level and stopping lateral drainage head cutting. Several approaches will be taken. We started this summer in August 1987, the last year the area will be grazed until 1992. We began by ripping the compacted valley on the contours at 100' intervals, intending to encourage runoff into the soil to improve grass vigor and decrease erosion. Fencing has also been done to exclude grazing and two gully plugs have been installed near the bottom of the project area to illustrate the gullies sediment yield. In years to come exclosures will be built to protect filter strips of vegetation in the main gully where intermittent perennial water lies. More gully plugs are planned and fire will be used to manipulate the dominant shrubs of sage and juniper into a better stand of native grasses.

5. The Big Onion Beaver Reintroduction Plan was implemented July 10, 1987. It involved 1.5 miles of stream in the Dairy Creek drainage. The annual precipitation is about 16-20 inches. Most of which comes in the form of snow. The vegetative communities include aspen, aspen/conifer mix and sagebrush/grass mix. The terrain is rolling and somewhat mountainous.

On the Big Onion Grazing Allotment there are two springs which join to form a small perennial stream. This stream has in the past cut its channel down about 7 feet below the canyon bottom in several areas. Under current management the stream bank has managed to stabilize itself, but has not appeared to be raising the stream bottom. This drop in stream channel has lowered the water table in the canyon and as a result has allowed wet meadows to dry. Since the meadows have dried, sagebrush has been encroaching on the meadows and have lowered the productivity.

The objectives of this project is to determine if the activity of reintroduced beaver is effective in:

1. Significantly raising the elevation of the stream bed in five years, and

2. Increasing the size of the wet meadows,

on a stream in a grazing allotment managed under a two pasture deferred rotation grazing system.

The Project consisted of reintroducing four-six beaver in the Bull Springs area on the Big Onion Grazing Allotment. This area is currently grazed under a two pasture deferred rotation system. The range trend is increasing over the entire allotment. About 94% of the allotment is in fair condition, 5% is in poor condition and 1% is in good condition.

In order to maintain an adequate supply of aspen trees for the beaver to use as building material, some of the current aspen stands may have to be burned or cut to stimulate growth of new trees. Stands of aspen will be selected for treatment if it is determined necessary. Treatment of aspen stands will consist of burning five acre or less patches of aspen within 200 yards of the stream, or manually thinning and clear cutting 1-2 acre patches of aspen. Besides providing the beaver with more building material, better wildlife forage and cover will result from the stimulated aspen growth.

The beaver were trapped from the Wrights Creek area on private land where they are presently a problem. This area is located

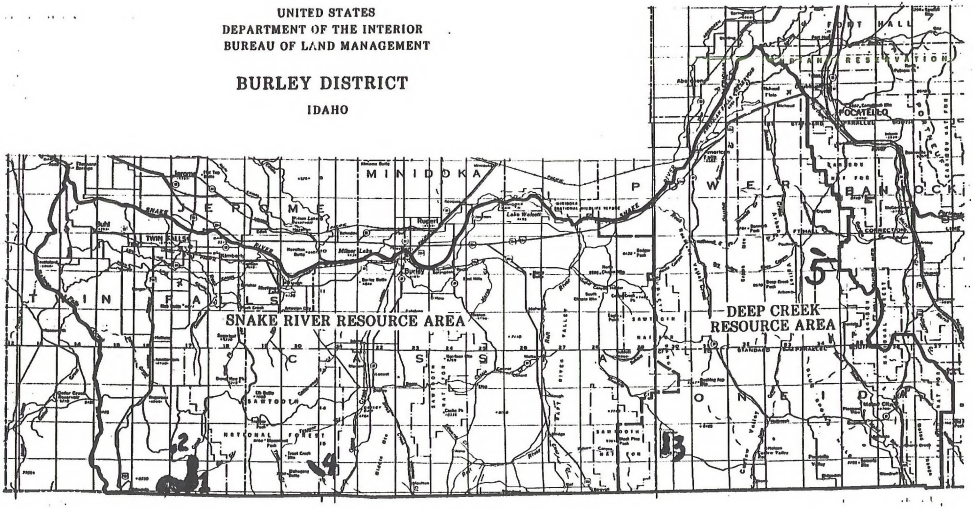
approximately 10 miles southeast of the proposed release sight across the Malad Valley.

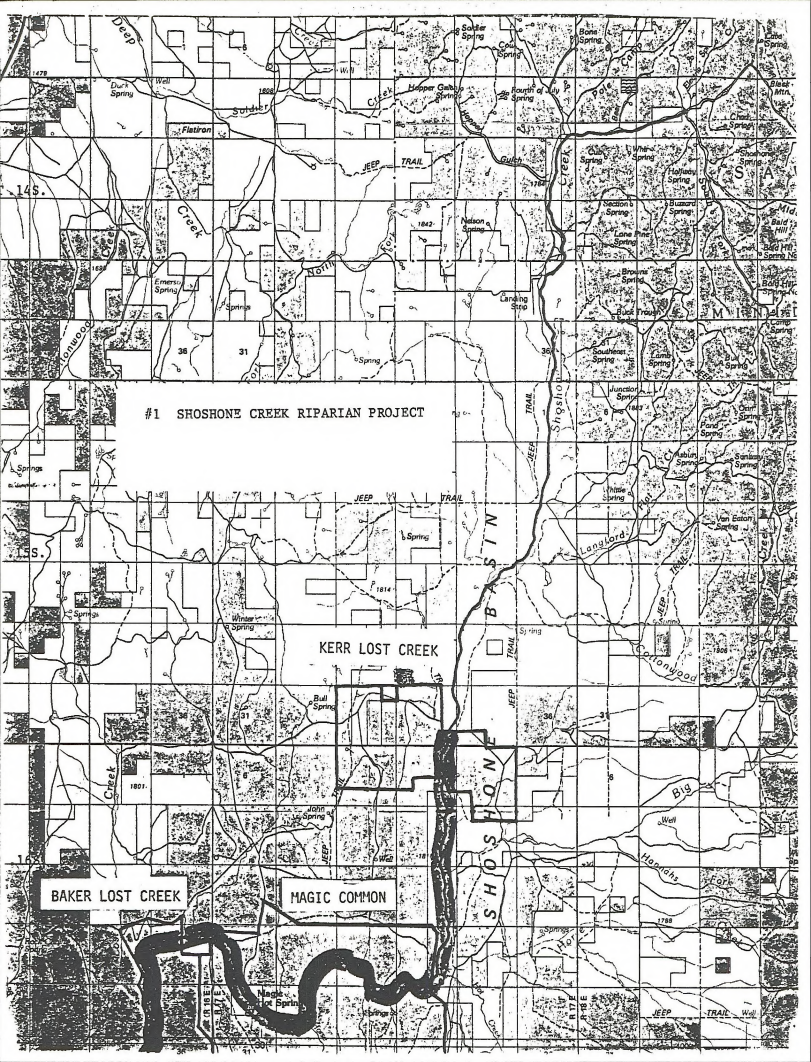
As the plan was only implemented this year, it is too early to gather any data on results.

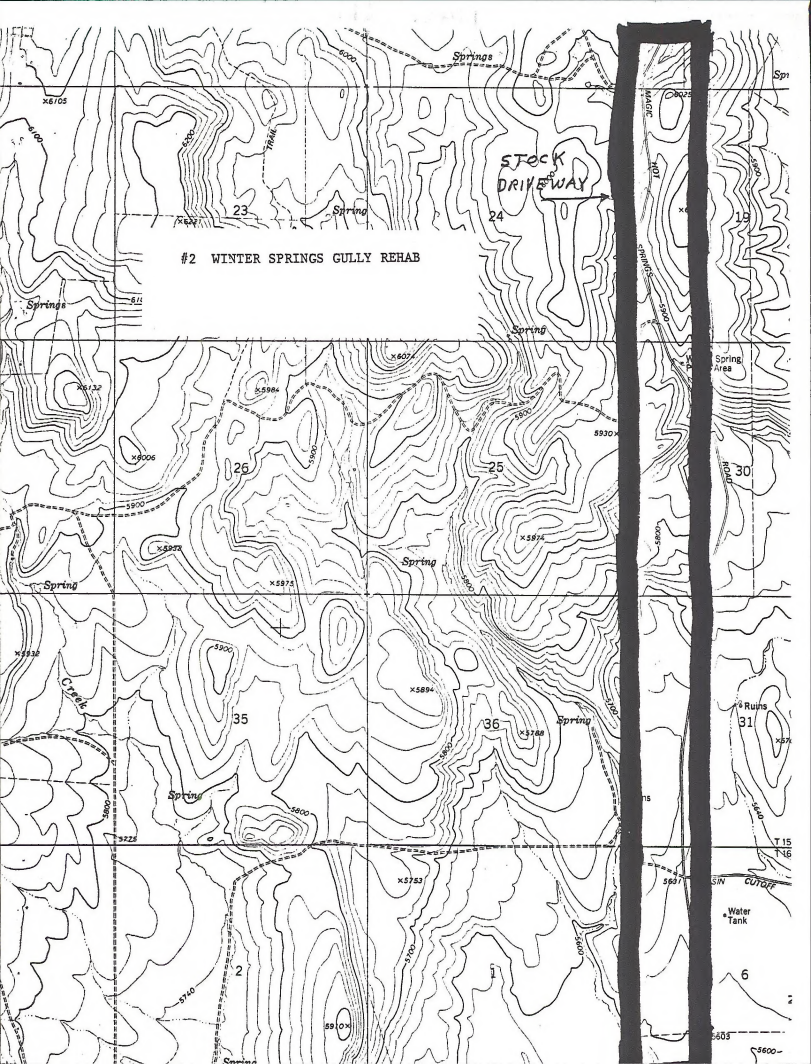
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

BURLEY DISTRICT

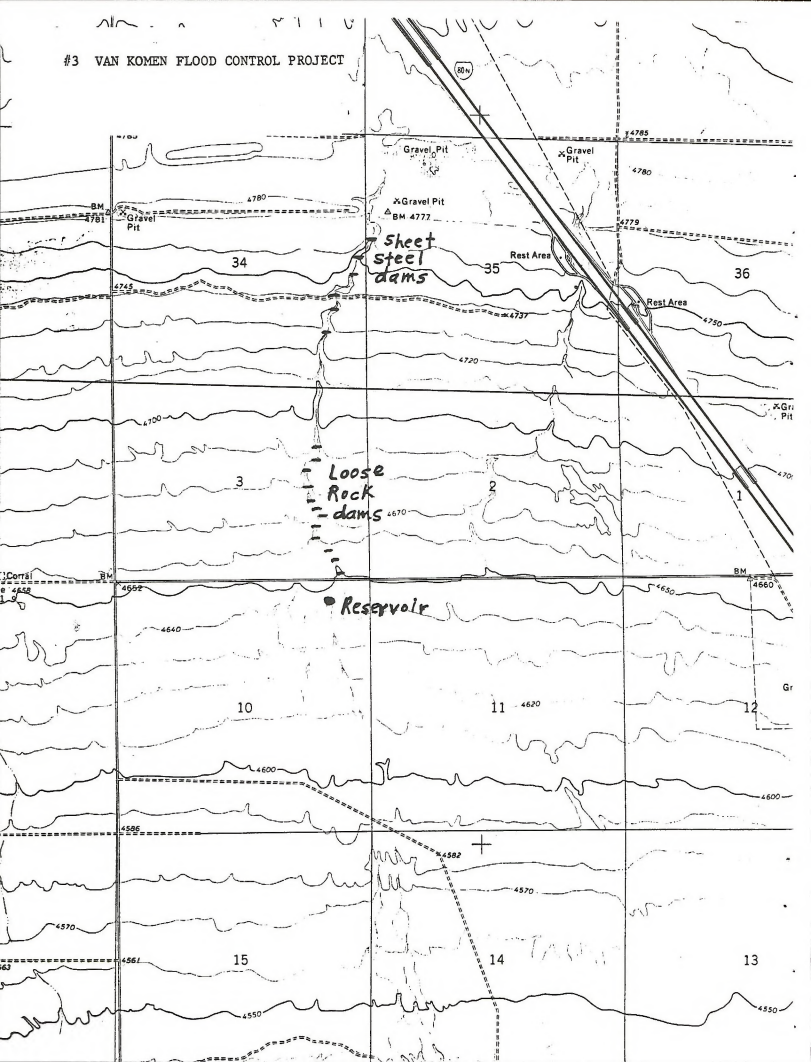
IDAHO

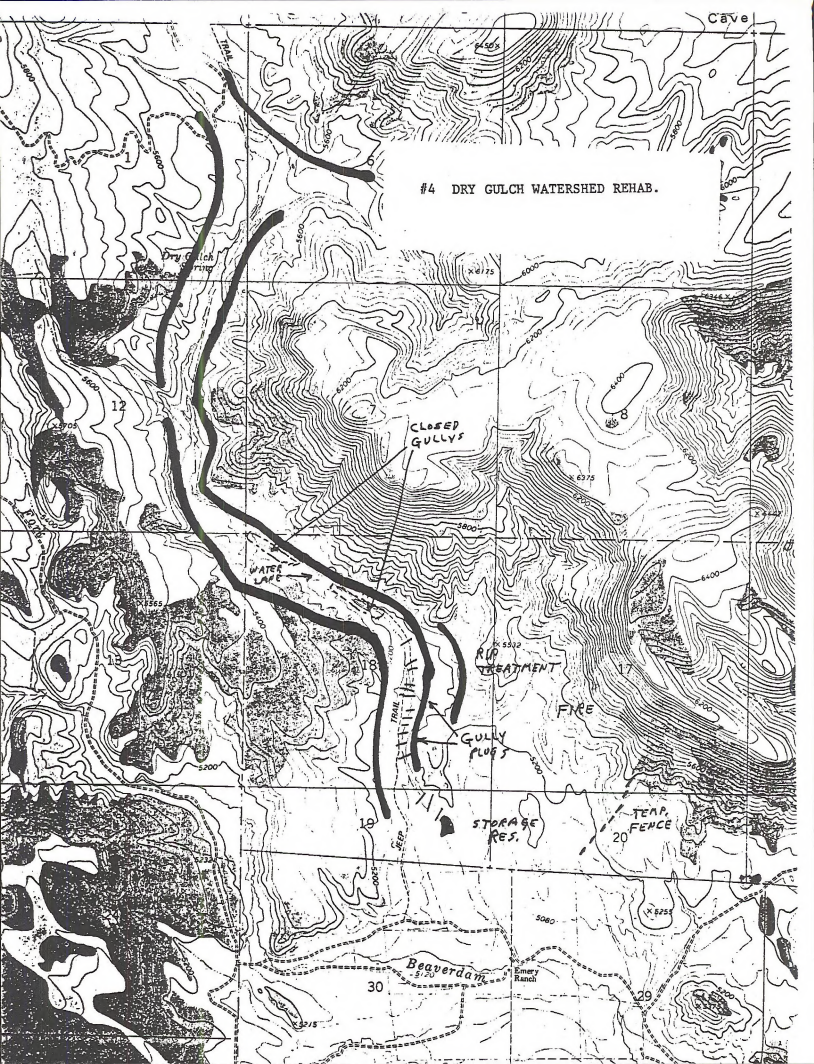


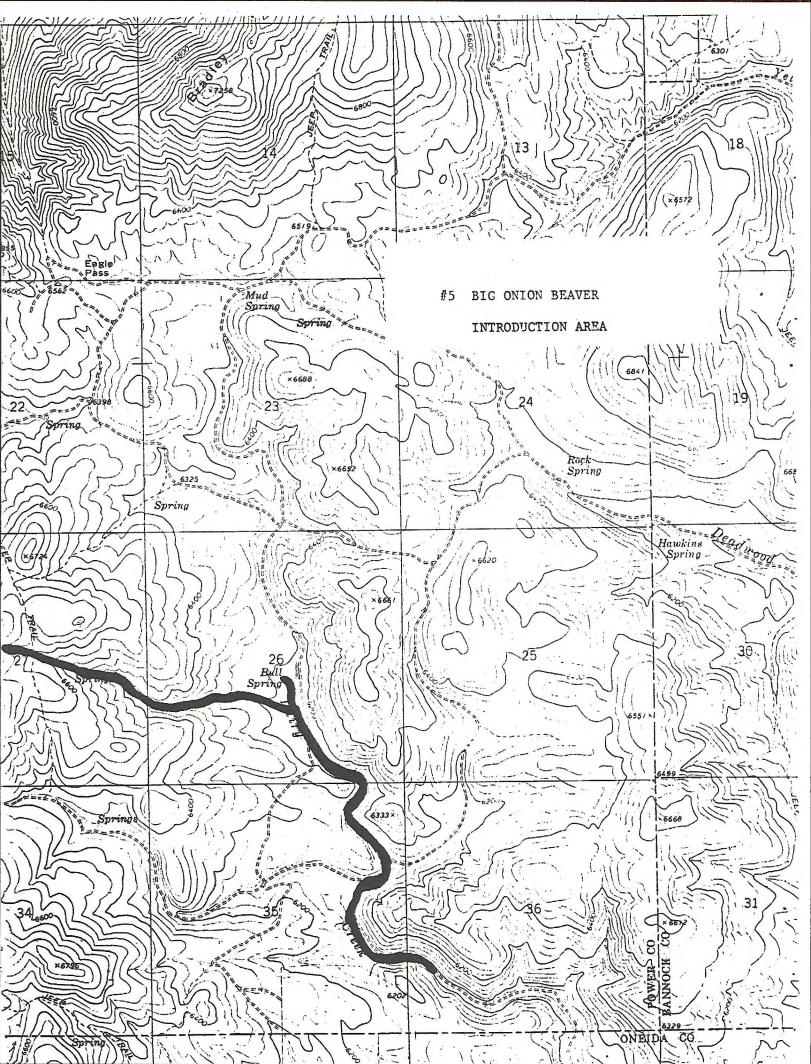

#1 SHOSHONE CREEK RIPARIAN PROJECT
KERR LOST CREEK
BAKER LOST CREEK
MAGIC COMMON
SHOSHONE BASIN
14S.
15S.
16S.


#2 WINTER SPRINGS GULLY REHAB
STOCK DRIVEWAY
Springs
Spring
Trail
Spring Area
Water Tank
Ruins
Creek
MAGIC
23
24
25
26
35
36
2
1
19
30
31
6
T15
T16

#3 VAN KOMEN FLOOD CONTROL PROJECT




#4 DRY GULCH WATERSHED REHAB.
Cave
Dry Gulch Spring
CLOSED GULLYS
WATER LINE
RIP TREATMENT
FIRE
GULLY PLUGS
STORAGE RES.
TEMP. FENCE
Beaverdam
Emery Ranch
TRAIL
12
13
18
17
19
20
29
30


#5 BIG ONION BEAVER
INTRODUCTION AREA
Eagle Pass
Mud Spring
Spring
Rock Spring
Hawkins Spring
Deadwood
Bull Spring
Springs
JEEP TRAIL
POWER CO
BANNOCK CO
ONEIDA CO
13
14
18
19
22
23
24
25
26
30
31
34
35
36
6800
6600
6400
6200
6519
6562
6398
6325
6688
6652
6620
6661
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6572
6841
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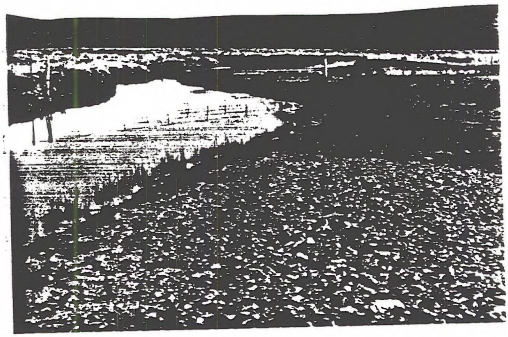
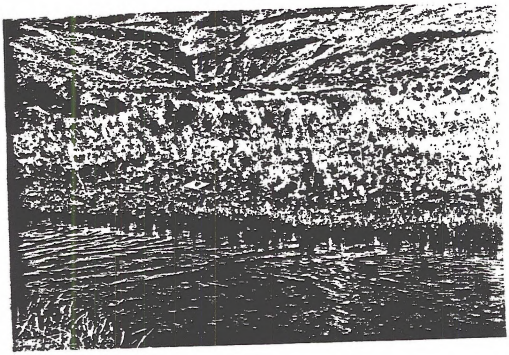
6612
6795

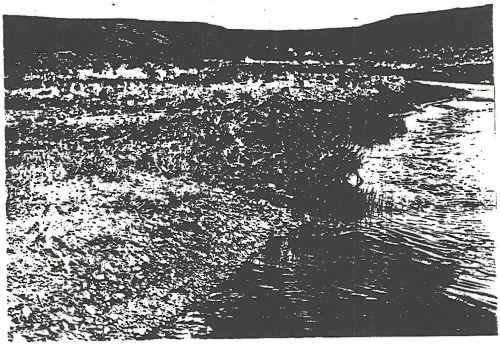
Shoshone Creek



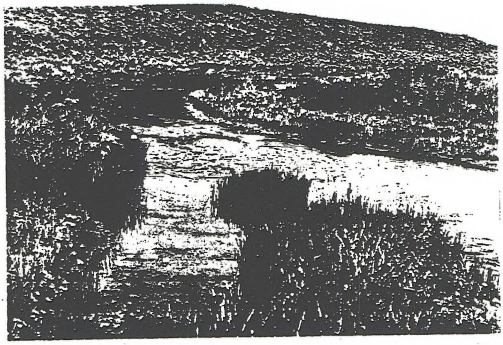
1. Upper project area with 1983 exclosure fence line crossing upper photo. Gravel bar in foreground remains unvegetated under grazing pressures.



2. Vegetative succession inside lower project exclosure and showing canyon system in background.

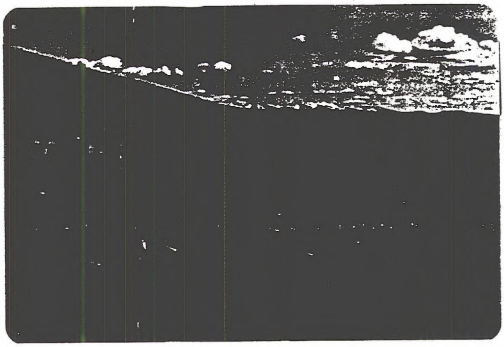


3. Looking onto fenceline contrast of eight-year-old exclosure. Note the lack of bank cover in foreground.

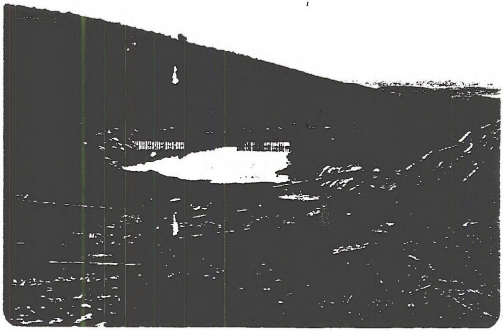


4. Bank stability and instability inside eight-year-old exclosure.

Winter Springs

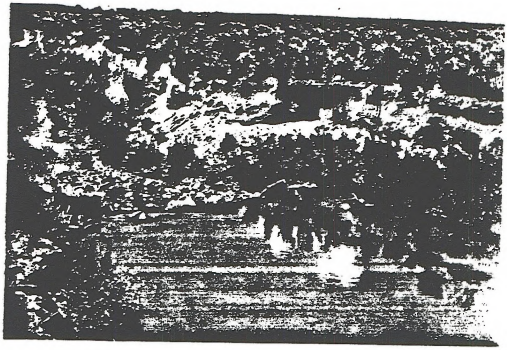


1. Wetland damage caused by concentrated livestock in stock driveway.



2. These structures were used to retain water and restore wetland soils/vegetation.

Van Komen



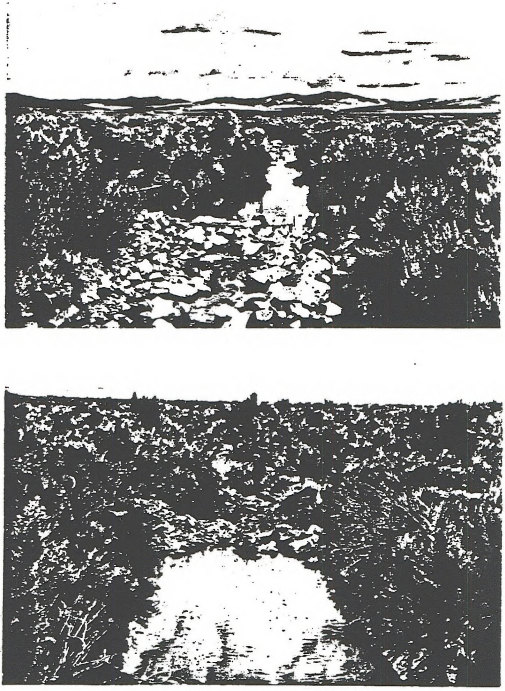
1. Structures used to hold water/sediment and take the punch out of flash floods.

2. When maintained in "85" this structure's spillway was blocked with added rip rap. The channel found a new route and maintenance was again needed in "87".

Dry Gulch

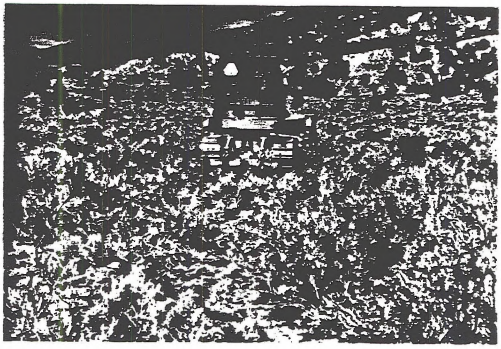
Severe erosion where the proposed remedy will be to fence off exclosures and water lanes in the gully systems while providing rest and subsoiling treatment to uplands to increase water absorption.

Dry Gulch



Small earthen structure built on private land below project area filled with sediment in one summer storm.

Dry Gulch



Subsoiling on contour with gully shown in 3 and 4 at upper left.

Dry Gulch watershed in perspective with Sawtooth Forest in background.

Idaho Falls District

Riparian Management Program

by

Tim Bozorth
Hydrologist

Idaho Falls District Office
Bureau of Land Management
940 Lincoln Road
Idaho Falls, Idaho 83401

IDAHO FALLS DISTRICT RIPARIAN PROGRAM, 1987

The Idaho Falls District manages 2,268,388 surface acres in Eastern Idaho. Within this land base are approximately 300 miles of streamside riparian habitat.

This report contains a description of riparian protection and enhancement projects the Idaho Falls District has worked on in the past, is currently constructing and has plans to construct in the future.

If you have any questions contact Tim Bozorth (554-6367, FTS; (208) 529-1020, commercial.

Idaho Falls District Riparian Management Projects

#1 Wet Creek

Wet Creek is a freestone system that drains the east side of the Lost River Range which contains the highest peaks in Idaho. Wet Creek is a tributary to the Little Lost River, discharge averages 30 cfs. Annual precipitation in the area is 9 to 15 inches with a mean annual temperature of 45°F. The project area ranges from 6,900 feet to 5,900 feet with a 1.6% slope. Vegetation is a salix/carex community type that has changed to a salix/poa pretensis type in places, due to past overgrazing. The 1978 Management Framework Plan for this area recommended fencing 11 miles of Wet Creek due to overutilization of riparian habitat by livestock. Prior to 1981 the Wet Creek project area saw spring, summer or fall grazing annually. This 7.0 mile segment of Wet Creek has been excluded since 1981. In the larger study area we have collected base line data from 1981 to 1987 except for 1985. There has been some changes from herbaceous to woody vegetation along the stream. The stream channel has narrowed and gotten deeper in some places. Fisheries population numbers have not improved in the last six years.

In 1988 we will install water, shade structures and salt upon a bench area to the west in an attempt to draw the cattle from the stream. We will monitor any changes in condition over the next several years.

There are two small enclosures within the larger exclosure where we have been testing hi-intensity short duration grazing. The results of this study are not complete and we will test this system for one more year.

The lower section of Wet Creek flowing across the Mulkey bar and into the Little Lost River Valley saw spring and early summer grazing annually before 1980. Since 1980 it has been in a rest rotation system with spring or summer use. This area has shown only very slight improvement.

Funding for this RDTS project has never materialized. This year implementation of the "alternatives to fencing" will be paid for from program increases in 4341, 4322 and 4351; however, we do not have any capability to conduct riparian monitoring on this project in FY 88.

#2 Sawmill Creek

Sawmill Creek is a freestone stream at the head of the Little Lost River Valley and drains a portion of the Lemhi Mountain Range. The annual precipitation in this area is 8.85 inches with a mean annual temperature of 45°F. The average discharge is 40 cfs. Elevation ranges from 6,700 feet to 6,150 feet in the project area of 7 miles.

The riparian area along Sawmill Creek is aspen, cottonwood and willow in the upper reach with cottonwood, willow, birch and rose in the lower reach. Livestock overutilization of riparian species and fires have destabilized the streambanks which has resulted in extensive channel widening in the lower reach during high runoff years.

This stream contains a good bull, brook and rainbow wild trout fishery. The bull trout is a species of special concern in Idaho. Sawmill Creek appears to be the source of the bull trout fishery in the Little Lost drainage. This species is also genetically isolated from others in the state by the geologic nature of the Little Lost River system.

Prior to the installation of this project in 1986 Sawmill Creek saw spring or summer and always fall livestock use annually on the upper 3.5 miles. The lower end saw spring and summer use annually and sometimes fall use.

This project was initiated as mitigation for a flood control project near Howe on the Little Lost River. To compensate for the lost fisheries and riparian habitat, mitigation was set at $89,000 and Sawmill Creek was selected for a habitat improvement project. In 1986 7.5 miles of fence was constructed to exclude the lower 1/2 of the project area along Sawmill Creek and place the upper 1/2 in a spring use riparian pasture. A spring was developed and water was piped to three troughs in the portion of the allotment removed from access to the creek.

#3 Summit Creek

Summit Creek is a spring fed stream at the head of the Little Lost River Valley located between the Lemhi Mountain Range to the east and the Lost River Mountain Range to the west. The annual precipitation in this area is 8.85 inches with a mean annual temperature of 45.3°F. The project reach varies in elevation from 6,370 feet at the top to 6,150 feet at the bottom. This stream reach has a gradient of 2.0% and lies to the southeast in aspect. Annual discharge is 20 cfs. One half mile of Summit Creek was fenced and excluded from livestock grazing in FY 86. This action was recommended 7/78 in the Little Lost/Birch Creek MFP. The reason this was suggested was that overuse by livestock had eliminated or severely damaged riparian vegetation and fisheries habitat in the area and was conflicting with recreation use. This was done in conjunction with a landowners request since his cattle were not graining weight by laying around the creek all the time. This 1/2 mile of stream is contiguous with the Summit Creek Campground, a highly used campground on the Salmon/Idaho Falls BLM District boundary. This stream supports a prolific brook-rainbow trout fishery. Key riparian species are birch, willow, rose, carex and juncus. The invertebrate species in this spring creek are prolific numbering 12,000 per square meter. This makes it the 2nd most productive stream regarding invertebrate populations in the State of Idaho that there is information on. Summit Creek and Sawmill Creek combine to form the Little Lost River, a lost drainage of the Snake River Basin.

In FY 88 the Idaho Falls District plans to construct 2 miles of fence that will create a limited use riparian pasture on Summit Creek, 4.5 miles downstream from the upstream exclosure. This will improve riparian and fisheries habitat along 2 miles of Summit Creek and increase fish numbers to help compensate for riparian and fisheries habitat lost on the Little Lost River near Howe as a result of a flood control project. The grazing system prior to 1988 has been a rest rotation system. This grazing treatment has resulted in severe overutilization of woody riparian species and degrading of fisheries habitat.

#4 Squaw Springs

Squaw Springs is a spring fed system near the base of the Lost River Range. This area has annual precipitation of 8.85 inches and a mean annual temperature of 45°F. Annual discharge is 1 cfs. The riparian vegetation in this area is a salix/carex community type. The 1978 MFP for this area stated that "just above Squaw Springs, Squaw Creek eroded a gully about ten feet deep, up to 20 feet wide and approximately one quarter mile long. The erosion appears to be primarily the result of rapid runoff from snowmelt". It was recommended that the area be fenced. Prior to 1981, this area saw hot season grazing use. One mile of riparian habitat was excluded from grazing in 1981.

Since 1981, the gully has filled 50% in the lower portion and 80% is revegetated. The vegetation in the spring area has improved and the 3/4 mile reach of Squaw Creek has seen dramatic improvement in riparian vegetation and fisheries habitat. Squaw Creek is a tributary to Wet Creek.

#5 Sands Creek - Big Creek

These tributaries to Wet Creek drain the foothills of the Lost River Range. The annual precipitation is 9 to 15 inches in this area with a mean annual temperature of 45°F. Average discharge is 3 cfs in Big Creek and 2 cfs in Sands Creek. The elevation in this area is 7,000 feet. The stream gradient is 4%.

This area is a salix/carex community type. Prior to 1981 this area saw spring or summer livestock use annually. Since 1981 it has been grazed annually in early spring and early fall. The improvement in six years is moderate along 3.0 miles of these streams.

#6 Williams Creek

Williams Creek is a tributary to the Little Lost River draining a portion of the Lemhi Range in central Idaho. The annual precipitation is 9 inches in this area with a mean annual temperature of 45°F. On this stream, average discharge is 1 cfs. Elevation in the project reach ranges from 6,450 feet to 5,840 feet with a gradient of 4.7%. The riparian vegetation along Williams Creek is Poa pretensis, nebraska sedge, birch, aspen and rose.

Prior to 1976, Williams Creek was grazed in the spring and fall annually. Since 1976, it has been grazed with a spring use only rest rotation system. This has resulted in good improvement in the riparian habitat along 3.0 miles of Williams Creek.

#7 Horse Creek

Horse Creek is a tributary to the Little Lost River draining a portion of the Lemhi Range in central Idaho. The annual precipitation is 9 inches in this area with a mean annual temperature of 45°F. Average discharge is 1 cfs on this stream. Elevation ranges from 6,880 feet to 5,880 feet, with a 6% gradient.

The riparian vegetation along Horse Creek is poa pretensis, nebraska sedge, and birch in the lower section. The upper canyon area contains these species as well as aspen.

Prior to 1980, the upper canyon area saw summer-fall grazing annually. Since 1980, this area has been grazed with a spring use only rest rotation system. This system has improved the riparian habitat along 1.5 miles of Horse Creek in this area.

The lower section of Horse Creek, on the Badger Creek Bar, prior to 1980 was grazed summer-fall annually. Since 1980 it has been in a deferred rotation system of spring or summer use annually. This system is not allowing the riparian habitat along Horse Creek to improve.

#8 Deer Creek

Deer Creek is a tributary to the Little Lost River draining a portion of the Lost River Mountains in central Idaho. The annual precipitation is 9 inches in this area with a mean annual temperature of 45°F. Average discharge is 3.0 cfs on this stream. Elevation ranges from 6,240 feet to 5,700 feet with a gradient of 2.6%. The riparian vegetation along Deer Creek is birch, carex, juncus, aspen, willow, rose and currant. This 4.0 mile section of Deer Creek supports a wild rainbow trout fishery.

Prior to 1980, grazing use was by cattle and sheep in the spring-fall or winter annually. In 1980, grazing use was changed to cattle use in the fall only. This impacted the riparian zone unless the cattle numbers were far less than those licensed and the use was late fall or early winter. In 1987 we are trying a spring and or winter treatment with cattle annually on this stretch of Deer Creek.

#9 Big Spring Creek

Big Spring Creek is a spring fed stream that runs parallel to the Little Lost River for 12 miles before joining the Little Lost River. The annual precipitation is 9 inches in this area with a mean annual temperature of 45°F. Average discharge is 7.0 cfs on this stream. Elevation ranges from 5,530 feet to 5,310 feet for a gradient of .78%.

The riparian vegetation along Big Spring Creek consists of birch, carex, rose and cottonwood.

In 1982, four miles of this creek was excluded from livestock due to conflicts with the highway and cattle in this area.

This stream sees high recreation use by hunters, campers and fishermen. It supports a good wild rainbow trout fishery.

#10 Warm Spring Creek

Warm Spring Creek is a spring fed creek that runs parallel to the Little Lost River until it is depleted for irrigation. The annual precipitation is 9 inches in this area with a mean annual temperature of 45°F. Average discharge is 2.0 cfs on this creek. Elevation ranges from 5,180 feet to 5,030 feet for a gradient of .73%.

The riparian vegetation along Warm Spring Creek consists of rose, birch, hawthorne and cattails. This stream segment of 5.0 miles sees winter sheep grazing in the fall-winter annually. There is low impact to the riparian area due to herding.

This riparian area was burned in the spring of 1987 by an arsonist/irrigator but is resprouting. This spring creek supports a wild rainbow trout fishery.

#11 Fallert Creek

Fallert Creek is a spring fed creek that runs parallel to the Little Lost River for 4.0 miles before it joins the Little Lost. The annual precipitation is 9 inches in this area with a mean annual temperature of 45°F. Average discharge is 5.0 cfs on this creek. The riparian vegetation along Fallert Creek is birch, rose, juniper, and cattails.

Prior to 1983, this area was grazed by sheep in the spring or fall-winter. In 1983, this area was excluded from livestock use because the change by the operator to cattle would have resulted in severe distribution problems. This area sees high recreation use and supports a wild rainbow trout fishery.

#12 Trail Creek

Trail Creek is a tributary to Antelope Creek and drains the foothills of the Pioneer Mountains of central Idaho. The annual precipitation is 9.5 inches in this area with a mean annual temperature of 42°F. Average discharge is 1.0 cfs on this creek. Elevation ranges from 6,960 feet to 6,080 feet. The gradient ranges from 7.1% to 3.7%.

The riparian vegetation along Trail Creek is willow, poa pretensis and carex. There is 6.5 miles of Trail Creek in the project area.

This stream has seen season long grazing for a long time. The riparian vegetation is severely degraded and down cutting and gully erosion is taking place.

In FY 88 we hope to begin fencing Trail Creek into a riparian pasture where we can better control the grazing use. This AMP with riparian habitat improvement objectives is currently being written.

#13 Birch Creek

Birch Creek is a spring fed creek that sinks into the Snake Plain aquifer The project area is south of Blue Dome between the Beaverhead and Lemhi Mountains. The annual precipitation in this area is 9.0 inches with a mean annual temperature of 45°F. Average discharge is 40 cfs on this creek.

The Birch Creek riparian zone is comprised of a birch/carex community with a scattering of willows. This area sees extremely high recreation use as it is bordered by a major highway. There is a rainbow trout fishery in Birch Creek comprised mainly of wild fish.

Prior to 1976, the riparian zone was grazed spring-summer annually. Since 1976, the lower stretch, 3.0 miles in length, has been grazed spring only with a rest rotation system. This has resulted in great improvement in the riparian vegetation.

The upper portion of the creek near the campground has been excluded from livestock since 1976. This section is 2.0 miles in length. We are currently acquiring a mile section of state land that we intend to add to this exclosure due to recreation/livestock conflicts.

There is a 1/4 mile study exclosure that has been in place since 1968 along Birch Creek in the lower section. A series of gabions, trash catchers and k-dams have been placed in the exclosure and along the lower section of Birch Creek in an attempt to improve fisheries habitat.

In 1987 a hydropower development was constructed that diverted water from Birch Creek along its lower reach. As mitigation for this project, an artificial fishery and riparian area is being constructed in a portion of the hydropower water conveyance system.

#14 South Fork Snake River

The South Fork of the Snake River originates in the Teton Mountains and drains 5,900 square miles in western Wyoming and Eastern Idaho. Average discharge is in excess of 7,000 cfs. Precipitation ranges from 15 to over 20 inches in the mountains. Vegetation in the project area is dominated by woody species of cottonwood, dogwood, alder, hawthorne, rose, service berry, chokecherry, and willow. Major herbaceous species are canary reed grass and carex. The river in the project area flows through river bottoms in Swan Valley then goes into a deeply incised rocky canyon before traveling on to river bottoms again on its way to meeting the North Fork of the Snake River. Public lands along the river see extremely high recreational use.

The South Fork of the Snake River is home to the Snake River fine spot and Yellowstone cutthroat trout; both species of special concern in Idaho and the bald eagle a threatened and endangered species.

In FY 87 the BLM used conifer tree revetments to stabilize a 400' section of streambank along the South Fork. This section of streambank was actively sloughing off into the river. In FY 86 the BLM planted willows and tree seedlings along the bank in attempts to stabilize it. This project has had limited success as this bank is still actively eroding but the revetments are holding some soil both on the banks and out of the river.

In order to improve riparian habitat along the South Fork, we are increasing our efforts in grazing management in riparian areas along the river, monitoring riparian vegetation and livestock trespass. A riparian pasture was created in 1985 along the South Fork to alleviate livestock/riparian/recreation conflicts in one area.

In FY 87 all grazing allotments along the South Fork (30+) were monitored for riparian utilization and photo plots were established. Basal diameter of cottonwoods were measured to observe woody species age class changes.

#15 Pritchard Creek

Pritchard Creek, a tributary to the South Fork of the Snake River, is an important spawning stream for two types of cutthroat trout that are species of special concern; the Snake River fine spot and the Yellowstone cutthroat.

Pritchard Creek drains a portion of the Caribou Range and receives an average of 17 inches of precipitation annually. The project area is in the foothills. Dominant woody species are aspen, rose and hawthorne. Poa pretensis, carex, and watercress are the major herbaceous species.

A project to improve riparian and fishery habitat was required when a private dam failed upstream and caused severe erosion and down cutting of Pritchard Creek.

In 1986, the BLM provided cattleguard bases that were notched on top to serve as fish ladders to allow fish passage over a 100 yard impassable barrier. The placement of these fish ladders was done in a cooperative project with the Idaho Department of Fish and Game and Trout Unlimited. This work has proved to be successful, allowing fish to move up and down stream past the barrier.

In 1987, in another phase of this project, the BLM helped to secure conifer trees on .5 miles of Pritchard Creek in an effort to stabilize the streambanks.

The final phase of this project will take place in FY 88 when the remaining .5 miles of streambanks are stabilized with tree revetments.

#16 Deep Creek

Deep Creek is a small stream in the foothills of the Beaverhead Mountains. Dominant woody vegetation is aspen and willow. There is snowberry on the north facing slopes and poa and carex along the stream. Average annual precipitation is 11.75 inches with a mean annual temperature of 42.7°F. Deep Creek is a lost drainage in the Snake River Basin.

The Deep Creek riparian area has been overutilized by livestock for many years. Its steep canyon walls concentrate livestock in the stream bottom. In FY 86, two small exclosures were constructed and in FY 87, they were planted with aspen, birch, chokecherry, current and dogwood. The exclosures contain approximately .75 miles of stream. There is an old exclosure (5 acres) upstream of the two newly constructed exclosures. These exclosures total about 50 acres in size.

The goal of this project is to reestablish the riparian zone along Deep Creek as this is an important wildlife wintering area for moose, elk and deer.

There is 90% survival on the woody vegetation planted to date.

#17 Edie Creek

Edie Creek drains the Beaverhead Mountains along the Continental Divide between Idaho and Montana. Edie Creek is a small stream with an average annual discharge of about 5 cfs. Precipitation is about 12-15 inches with an average annual temperature of 42° F.

Edie Creek is both a fishery and a riparian area long overutilized by livestock. In FY 87, BLM constructed a fence 3 miles in length that enclosed 2.5 miles of Edie Creek into a riparian pasture. Three small existing exclosures and a new spring exclosure will be used as controls to monitor riparian vegetation improvement. This riparian pasture will see fall use and enable us to observe the concept of a fall use riparian pasture in this area. The goal of this project is to improve the condition of riparian vegetation along Edie Creek and increase duration and flow volume in the stream. Edie Creek also supports a brook trout fishery.

#18 Teton River

The Teton River drains 900 square miles including the west side of the Teton Mountains, the Big Hole Mountains and the north side of the Snake River Range. Average discharge is 830 cfs. Average annual rainfall is 10 to 15 inches and average annual temperature is 42° F. Predominant vegetation is willow, birch, cattails and canary reed grass. The project portion of the river flows mainly through a steep rocky canyon on its way to its junction with the Henry's Fork.

The BLM is currently rewriting its MOU with the Bureau of Reclamation regarding management of withdrawn lands for the Teton Dam project. The dam failed in 1976 and since that time there has been little or no management on these withdrawn lands. The BLM intends to try to improve upland wildlife habitat as well as improve riparian habitat along these project lands.

#19 Spring Creek

This area lies at the upper end of the Snake River plain and occupies the initial climb off the plains themselves. Elevation ranges from 5,700 to 6,900 feet. The Spring Creek pasture is a series of canyons and hogbacks, north slopes and bottoms are Douglas fir and aspen and the hogbacks are Mountain big sage and Idaho fescue with Bluebunch wheatgrass on the south slopes. Dry Creek and Spring Creek, which run through this pasture, are tributary to Camas Creek, a lost drainage. This is some of the higher quality riparian habitat in the Medicine Lodge Resource Area. Precipitation averages 19 inches per year with the mean annual temperature of 44° F.

This area is important moose habitat and supports 4 to 8 moose year round. There is also elk, bear, deer, beaver and brook trout utilizing this riparian area. The goal of this riparian project is to, as an objective in the allotment management plan (AMP), improve the quality of riparian habitat through the implementation of a rotational grazing system, utilizing a riparian pasture created by constructing a new pipeline and building a drift fence. This would place 2 miles of Spring Creek and 3 1/2 miles of Dry Creek in a riparian pasture.

We plan to implement this project in FY 88 with challenge grant funds. The operator has agreed to build the pipeline and fence and purchase water tanks; if BLM will supply pipeline and fence material as well as developing the spring.

#20 Willow Creek

Willow Creek drains the Eastern Idaho foothills southeast of Idaho Falls and runs into Ririe Reservoir. The soils in this area are highly erosive and the intensive agricultural development in the area has required an intensive 208 program. The vegetation of this area is Coyote willow, juniper and dogwood. Average annual temperature and precipitation is 47°F and 16.25 inches, respectively.

This stream provides a very good fishery of native cutthroat, wild brown trout and hatchery rainbow trout. This area is also important as a big game wintering area. The BLM has been cooperating with the Idaho Department of Fish and Game in retiring grazing privileges on IDF&G purchased lands in this area. The BLM has also exchanged for lands along Willow Creek in an effort to consolidate our land ownership in this area.

#21 Game Creek

Game Creek is located along the Idaho/Wyoming border east of Idaho Falls at the base of the Teton Mountains. Average annual precipitation is 16 inches and mean annual temperature is 40.5°F. Predominant vegetation is willow, chokecherry, cottonwood, spruce, carex and timothy. Game Creek is a tributary to the Teton River.

The BLM closed this watershed to multiple use as it is the municipal watershed for Victor, Idaho. This has also served to improve the riparian habitat along Game Creek. Game Creek also has high wildlife and fisheries value.

#22 Blackfoot River

The Blackfoot River drains 1,300 square miles of the Eastern Idaho highlands and is a tributary to the Snake River. Average discharge is 215 cfs. Average annual precipitation is 11 inches and mean annual temperature is 47°F. Much of the river flows through a canyon of willow, chokecherry and fir. There are excellent fishery values and recreation use along the Blackfoot River is high from both fishermen and floaters.

The riparian habitat in the project reach, is in fair to poor condition due to overutilization by livestock. Management recommendations in the Pocatello RMP, require improvement in riparian habitat along 11.7 miles of the Blackfoot River through fencing and removing livestock from riparian habitat whenever grazing utilization on key riparian plants reaches 50%. These recommendations will be implemented after the allotment management plan is written.

#23 Wolverine Creek

Wolverine Creek drains out of the Blackfoot Mountains and is a tributary to the Blackfoot River. Average discharge is 3 to 5 cfs. Annual precipitation is 11 to 15 inches and the mean annual temperature is 47°F. The riparian zone is about 20 feet wide and consists of aspen, rocky mountain juniper, cottonwood, chokecherry, water birch and currant. The wildlife and fisheries values are high along Wolverine Creek and recreation use is moderate.

The riparian habitat on Wolverine Creek varies from poor to good condition due to overutilization from livestock. 1.4 miles of Wolverine Creek is scheduled to be improved through fencing to exclude livestock from the riparian area. In FY 87 1.25 miles of Wolverine Creek was excluded from livestock use by building .25 mile of fence. There is a management recommendation in the recently completed RMP to support this decision.

#24 Jones Creek

Jones Creek is a tributary to Wolverine Creek. Average discharge is about 3 cfs. Jones Creek flows through a steep rocky canyon in the Blackfoot Mountains. Average annual precipitation is 11 to 15 inches and the mean annual temperature is 47°F. The riparian zone is 15 to 35 feet wide and consists of aspen, rocky mountain juniper, water birch, dogwood, willow and chokecherry.

The riparian habitat condition along Jones Creek is fair due to overutilization of woody riparian species by livestock. There is a brook trout fishery in Jones Creek. The management recommendation in the Pocatello RMP calls for the improvement of riparian habitat condition along Jones Creek by fencing .80 mile to exclude livestock.

#25 Deadman Creek

Deadman Creek flows out of the east side of the Portneuf Range and is a tributary to the Blackfoot River. Average discharge is 1 cfs. Average annual precipitation is 11 to 15 inches and the mean average temperature is 45°F. The riparian zone is 35 feet wide and is a salix-agrostis complex. Riparian condition is fair due to overgrazing by livestock.

Management recommendations in the Pocatello RMP require that BLM improve .25 mile of riparian habitat along Deadman Creek by removing livestock from the riparian habitat whenever grazing utilization on key riparian plants reaches 50%. This recommendation will be implemented after the allotment management plan is written.

#26 Graves Creek

Graves Creek flows north out of the Chesterfield Range and is a tributary to the Blackfoot River. Average discharge is 3 cfs. Average annual precipitation is 16.5 inches and mean annual temperature is 37.5°F. The riparian zone is dominated by willows and its condition is fair. This is due to overutilization by livestock.

Management recommendations in the Pocatello RMP require that BLM improve .40 miles of riparian habitat along Graves Creek by removing livestock from the riparian area whenever grazing utilization on key riparian plants reaches 50%. This recommendation will be implemented after the allotment management plan is written.

#27 Negro Creek

Negro Creek is a tributary to the Blackfoot River. Average discharge is 1 to 2 cfs. Average annual precipitation is 16.5 inches and mean annual temperature is 37.6°F. The riparian area is 10 to 20 feet wide and is a salix-poa pretensis complex in fair condition due to overutilization by livestock.

Management recommendations in the Pocatello RMP require that BLM improve .25 mile of riparian habitat along Negro Creek by removing livestock from the riparian area whenever grazing utilization on key riparian plants reaches 50%. This recommendation will be implemented after the allotment management plan is written.

#28 Meadow Creek

Meadow Creek is a tributary to Blackfoot Reservoir. Average discharge is 8 cfs. Average annual precipitation is 16.5 inches and the mean annual temperature is 37.6°F. Meadow Creek contains a brook trout fishery. The riparian area is 25 to 30 feet wide and is dominated by white clover and sedges. The riparian habitat along Meadow Creek is in fair condition due to overutilization by livestock.

Management recommendations in the Pocatello RMP require that BLM improve .40 mile of riparian habitat along Meadow Creek by constructing .75 mile of fence to exclude livestock.

#29 Bear River

The Bear River drains 4,880 square miles of Wyoming, Utah and the southeast corner of Idaho. It is a tributary to the Great Salt Lake Basin. Average discharge is 1,388 cfs. Average annual precipitation is 14.28 inches. Mean annual temperature is 42.5°F. The Bear River in the project area flows through a riparian area containing sedges, grasses, serviceberry, hawthorne, and willow.

Riparian habitat along this area is good but can be improved through removing livestock from the riparian habitat whenever grazing utilization on key riparian plants reaches 50%. This recommendation from the Pocatello Resource Management Plan will be implemented after the allotment management plan is written.

#30 Sheep Creek

Sheep Creek is a tributary to the Bear River. Average discharge is .5 cfs. Average annual precipitation is 14.28 inches and mean annual temperature is 42.5°F. This stream meanders through a shallow valley west of the Sheep Creek Hills in southeastern Idaho. The riparian zone varies between meadows, willows and aspen.

The riparian habitat is in fair condition due to overutilization by livestock. Management recommendations in the Pocatello RMP require that BLM improve .25 mile of Sheep Creek through removing livestock from the riparian habitat whenever grazing utilization on key riparian plants reaches 50%. This recommendation will be implemented after the allotment management plan is written.

#31 Peagram Creek

Peagram Creek is a tributary to the Nuffer Canal in the Bear River drainage. Average discharge is .5 cfs. Average annual precipitation is 9.90 inches and mean annual temperature is 41.0°F. This slightly meandering stream drains to the north of the Bear Lake Plateau in southeastern Idaho. Riparian vegetation consists of grasses and sedges.

The riparian habitat is in poor condition due to overutilization by livestock. Management recommendations in the Pocatello Resource Management Plan require that BLM improve riparian habitat along 1.10 miles of Peagram Creek through fencing.

#32 Green Canyon

Green Canyon is a tributary to Saint Charles Creek in the Bear River drainage. The average discharge is .10 cfs. The average annual precipitation is 14.17 inches and the mean average temperature is 41°F. Riparian vegetation consists of aspen, chokecherry, fir, grasses and sedges. This stream flows from the foothills of the Bear River Range in southeast Idaho. The riparian habitat along Green Canyon is in fair condition due to overgrazing by livestock.

Management recommendations in the Pocatello Resource Management Plan requires that conditions of riparian habitat along .50 mile of Green Canyon be improved through constructing 1.2 miles of fence.

#33 Eighteen Mile Creek

Eighteen Mile Creek is a tributary to the Portneuf River and drains out of the Chesterfield Range. The average discharge is 1.0 cfs. Average annual precipitation is 16.5 inches and mean annual temperature is 37.6°F. Riparian vegetation would consist of willow, birch, dogwood, gooseberry, rose, and aspen; however, overutilization of streamside vegetation has reduced it to 3 inches in height. This riparian area is in poor condition.

Management recommendations in the Pocatello Resource Management Plan requires that riparian habitat along .35 mile of this stream be improved through fencing.

#34 Turner Canal

Turner Canal flows through a very steep eroded gulch in the Bear River drainage. This is an intermittent stream. Average annual precipitation in the area is 14.28 inches and the mean annual temperature is 42.5°F. This riparian area is in poor condition due to extensive gully erosion. Riparian vegetation consists of snowberry and grasses.

The management recommendations in the Pocatello Resource Management Plan requires that .20 mile of fence be constructed to rehabilitate this .25 mile long riparian area.

#35 Lander Creek

Lander Creek is a tributary to Lanes Creek in the Bear River drainage. The average discharge is 1.5 cfs. Average annual precipitation in the area is 18.0 inches with a mean annual temperature of 38.1°F. The valley through which Lander Creek flows is stable and of low gradient. The stream meanders through this valley and contains several beaver ponds. There is a cutthroat trout fishery in Lander Creek. Riparian vegetation consists of willows with a grass/forb complex near the water.

The riparian habitat along Lander Creek is in fair condition due to overutilization by livestock. The management recommendations in the Pocatello RMP require riparian habitat along .40 mile of Lander Creek be improved by fencing out livestock.

#36 Horse Creek

Horse Creek is a tributary to Stump Creek in the Salt River drainage. Average discharge is 4 cfs. The annual precipitation in the area is 18.0 inches and the mean annual temperature is 38°F. This salix-poa pretensis complex is in poor condition due to extensive overgrazing. This stream contains fishery values.

The riparian habitat along .40 mile of Horse Creek is to be improved through fencing .75 mile to exclude livestock.

#37 Stump Creek

Stump Creek is a tributary to the Salt River. Average discharge is 12.0 cfs. The annual precipitation is 18.0 inches with a mean annual temperature of 38°F. Stump Creek meanders through the bottom of a wide flat valley containing a salix-poa pretensis riparian community. The riparian habitat is in fair condition due to livestock overgrazing. This stream contains fishery values.

The riparian habitat along 1.15 miles of Stump Creek will be improved by removing livestock from the riparian habitat whenever grazing utilization on key riparian species reaches 50%. This recommendation from the Pocatello RMP will be implemented after the allotment management plan is written.

#38 Hardman's Hollow Creek

This stream is a tributary to Crow Creek in the Salt River drainage. Average discharge is 1.0 cfs. The annual precipitation in the area is 16.46 inches with a mean annual temperature of 37.6°F. This is a salix/carex riparian community type in fair condition that is changing to a salix/poa pretensis type due to overgrazing by livestock. Utilization by livestock of 80% is changing the species' composition and causing extensive bank trampling and sloughing.

The riparian habitat along Hardman's Hollow Creek will be improved by removing livestock from the riparian habitat whenever grazing utilization on key riparian species reaches 50%. This recommendation from the Pocatello RMP will be implemented after the allotment management plan is written.

#39 Unnamed Tributary to Crow Creek

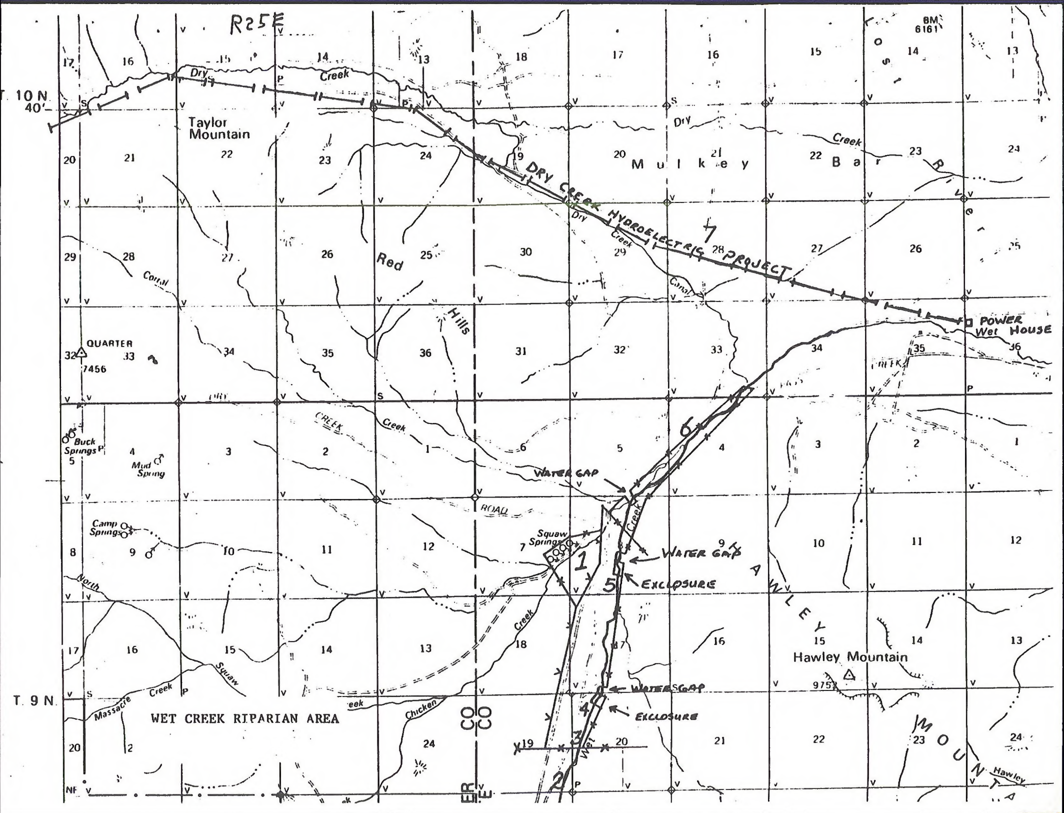
This unnamed tributary to Crow Creek in the Salt River drainage is in an area where the annual precipitation is 16.46 inches with a mean annual temperature of 37.6°F. This stream is a cutthroat trout fishery. The cutthroat trout is a species of special concern in Idaho. The riparian area along this stream is in poor condition due to overgrazing by livestock. Riparian vegetation consists of willow, grass, sedge, juncus and mint.

The Pocatello RMP recommends improving the condition of the riparian habitat along .30 mile of this tributary to Crow Creek by constructing .30 mile of fence.

#40 Graehl Creek

Graehl Creek is a tributary to Stump Creek in the Salt River drainage. Discharge averages 1.0 cfs. The annual precipitation in this area is 18.0 inches with a mean average temperature of 38°F.

This creek maintains an aspen/shrub/forb riparian zone that is in fair condition due to overutilization by livestock. The riparian habitat along Graehl Creek will be improved by removing livestock from .90 mile of stream whenever grazing utilization on key riparian species reaches 50%. This recommendation from the Pocatello RMP will be implemented after the allotment management plan is written.


R25E
T. 10 N. 40'
T. 9 N.
Taylor Mountain
Dry Creek
DRY CREEK HYDROELECTRIC PROJECT
POWER HOUSE
Mulkey Bar
Lost River
Red Hills
Coral
Canal
QUARTER 7456
Buck Springs
Mud Spring
Camp Springs
Squaw Springs
WATER GAP
EXCLOSURE
HAWLEY MOUNTAIN
Hawley Mountain
9757
North Creek
Squaw Creek
Massacre Creek
Chicken Creek
Wet Creek
ROAD
BM 6161
WET CREEK RIPARIAN AREA
CO CO

Idaho Falls District
Riparian Project Map
KEY

BIG BUTTE RESOURCE AREA

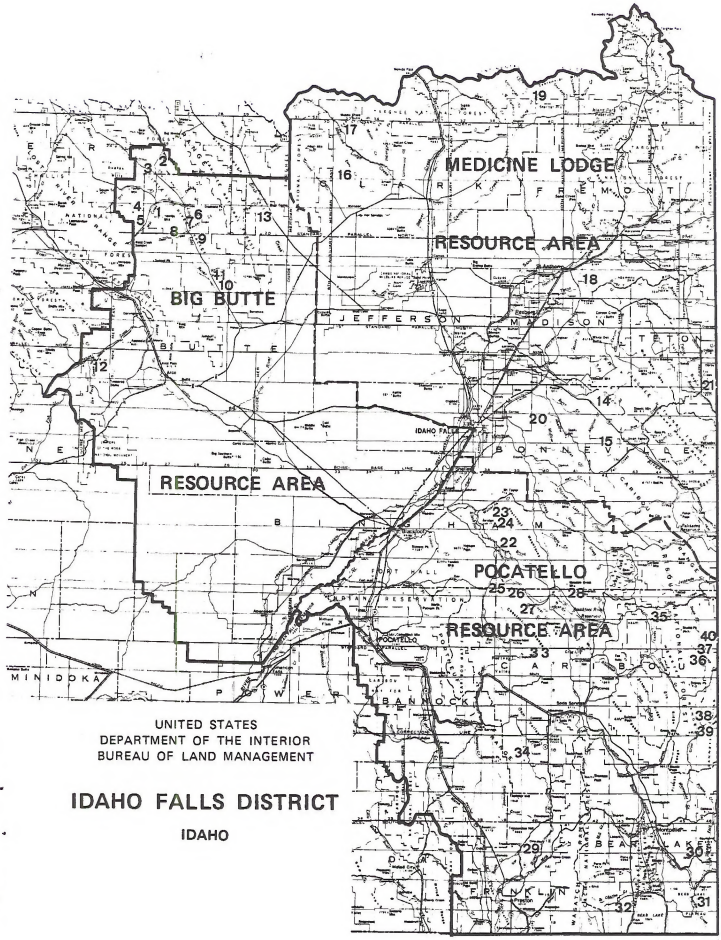
1. Wet Creek
2. Sawmill Creek
3. Summit Creek
4. Squaw Springs
5. Sands Creek - Big Creek
6. Williams Creek
7. Horse Creek
8. Deer Creek
9. Big Spring Creek
10. Warm Spring Creek
11. Fallert Creek
12. Trail Creek
13. Birch Creek

MEDICINE LODGE RESOURCE AREA

14. South Fork Snake River
15. Pritchard Creek
16. Deep Creek
17. Edie Creek
18. Teton River
19. Spring Creek
20. Willow Creek
21. Game Creek

Pocatello Resource Area

22. Blackfoot River
23. Wolverine Creek
24. Jones Creek
25. Deadman Creek
26. Graves Creek
27. Negro Creek
28. Meadow Creek
29. Bear River
30. Sheep Creek
31. Peagram Creek
32. Green Canyon
33. Eighteen Mile Creek
34. Turner Canal
35. Lander Creek
36. Horse Creek
37. Stump Creek
38. Hardman's Hollow
39. Crow Creek Trib.
40. Graehl Creek

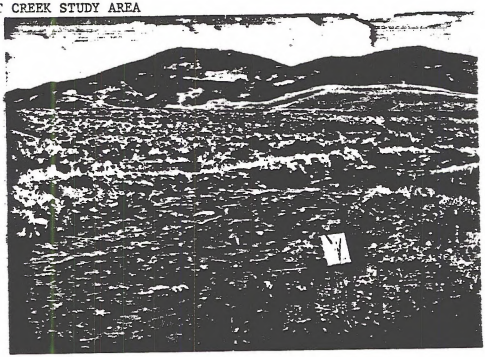


UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

IDAHO FALLS DISTRICT

IDAHO

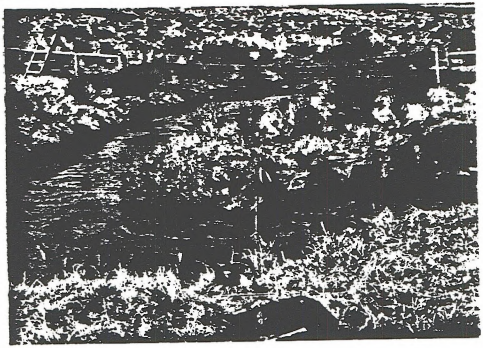
WET CREEK STUDY AREA



Transect, Alternatives to Fencing Study.

Savory(Holistic) Grazing Method Riparian Studies.

WET CREEK STUDY AREA



Pasture fence, Alternatives to Fencing Study

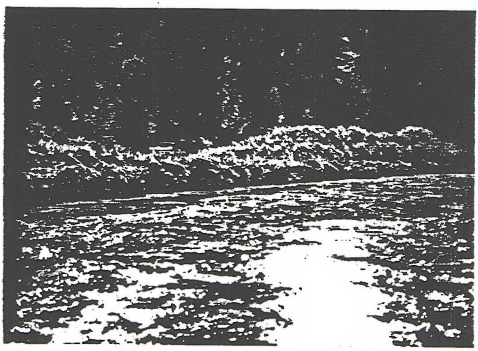
Transect across stream, Alternatives to Fencing Study.

BIRCH CREEK

Ungrazed segment of Birch Creek.

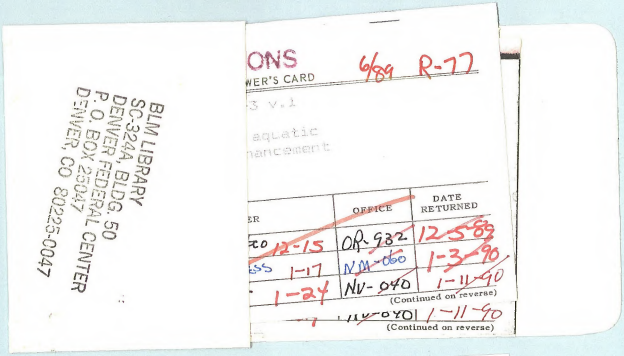
Instream structure (K dam) in Birch Creek.

SOUTH FORK OF THE SNAKE RIVER



Tree revetment to stop bank erosion along County Road.

Tree revetment to stop bank erosion, meadow area.



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(Continued on reverse)

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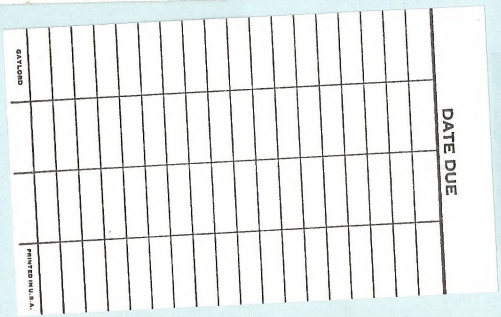

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